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VOLUME 10 PART 1

NORTH AMERICAN FLORA

(AGARICALES)

AGARICACEAE (pars)

WILLIAM ALPHONSO MURRILL

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ANNOUNCEMENT

The NORTH AMERICAN FLORA is designed to present in one work descriptions of all plants growing, independent of cultivation, in North America, here taken to include Greenland, Central America, the Republic of Panama, and the West Indies, except Trinidad, Tobago, and Curaçao and other islands off the north coast of Venezuela, whose flora is essentially South American.

The work will be published in parts at irregular intervals, by the New York Botanical Garden, through the aid of the income of the David Lydig Fund bequeathed by Charles P. Daly.

It is planned to issue parts as rapidly as they can be prepared, the extent of the work making it possible to commence publication at any number of points. The completed work will form a series of volumes with the following sequence:

Volume 1. Mycetozoa, Schizophyta, Diatomaceae.

Volumes 2 to 10. Fungi.

Volumes 11 to 13. Algae.

Volumes 14 and 15. Bryophyta.

Volume 16. Pteridophyta and Gymnospermae.

Volumes 17 to 19. Monocotyledones.

Volumes 20 to 32. Dicotyledones.

The preparation of the work has been referred by the Scientific Directors of the Garden to a committee consisting of Dr. N. L. Britton, Dr. W. A. Murrill, and Dr. J. H. Barnhart.

Professor George F. Atkinson, of Cornell University; Professor John M. Coulter, of the University of Chicago; Mr. Frederick V. Coville, of the United States Department of Agriculture; Professor Edward L. Greene, of the United States National Museum; Professor Byron D. Halsted, of Rutgers College; and Professor William Trelease, of the University of Illinois, have consented to act as an advisory committee.

Each author will be wholly responsible for his own contributions, being restricted only by the general style adopted for the work, which must vary somewhat in the treatment of diverse groups.

The subscription price is fixed at $1.50 for each part; it is expected that four or five parts will be required for each volume. A limited number of separate parts will be sold at $2.00 each. Address:

THE NEW YORK BOTANICAL GARDEN
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Family 7. AGARICACEAE *

By William Alphonso Murrill

42. LACCARIA Berk. & Br. Ann. Mag. Nat. Hist. V. 12: 370. 1883.

Russuliopsis Schröt. Krypt. Fl. Schles. 3[1]: 622. 1889.

Pileus fleshy, putrescent, thin, hygrophanous, solitary or gregarious; lamellae broadly adnate, thick, conspicuously whitened by the spores; spores hyaline, globose, verruculose or echinulate; stipe central, fleshy or fibrous; veil none.

Type species, *Agaricus laccatus* Scop.

Pileus 1–5 cm. broad.
  Lamellae violaceous. — 1. *L. amethystea.*
  Lamellae incarnate or pallid.
    Pileus 0.5–1 cm. broad, irregular; spores echinulate, 12–16 μ. — 2. *L. tortilis.*
    Pileus 1.2–5 cm. broad, regular; spores verruculose, 8–13 μ.
      Pileus 2 cm. or less broad, striatulate, spores 11–13 μ. — 3. *L. striatula.*
      Pileus usually larger, smooth; spores 8–10 μ. — 4. *L. laccata.*
Pileus 5–10 cm. broad. — 5. *L. ochropurpurea.*

1. Laccaria amethystea (Bull.) Murrill.

Agaricus amethystinus Bolt. Hist. Fung. Halifax 41. 1788. Not *A. amethystinus* Scop. 1772.
Agaricus amethysteus Bull. Herb. Fr. *pl. 198.* 1784.

Pileus thin, broadly convex, umbilicate or centrally depressed, solitary or gregarious, 1.2–2.5 cm. broad; surface hygrophanous, brown or violaceous-brown when moist, grayish when dry, unpolished; lamellae subdistant, adnate or decurrent, violaceous, color more persistent than in the pileus; spores globose, verruculose, 8–10 μ; stipe slender, equal, flexuous, hollow, concolorous or paler, 2.5–5 cm. long, 2–4 mm. thick.

Type locality: France.
Habitat: Damp ground in shaded places.
Distribution: Eastern temperate North America; also in Europe.
Illustrations: Sow. Engl. Fungi *pl. 187;* Bull. Herb. Fr. *pl. 198, pl. 570, f. 1 G;* Ann. Rep. N. Y. State Mus. 48: *pl. 25, f. 23–27.*

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*The following key will aid in distinguishing the ten remaining genera in the white-spored series of the tribe Agariceae, which are treated in the first part of the present volume. They agree in having the hymenophore fleshy or membranous, not reviving, the pileus regular, the stipe central, stout, fleshy, of uniform texture, and the lamellae entire, fleshy, not waxy. The currently accepted genus *Clitocybe* differs from *Laccaria* in having smooth or only slightly roughened spores and decurrent or adnate lamellae. These ten genera will also be included in a general key to the series to be published shortly in part 4 of volume 9.

Volva and veil absent, the latter sometimes rudimentary.
  Lamellae broadly adnate; spores globose, verruculose or echinulate. — 42. Laccaria.
  Lamellae sinuate; spores usually ellipsoid and smooth.
    Pileus smooth or inconspicuously decorated with fibrils or scales. — 43. Melanoleuca.
    Pileus conspicuously decorated with fibrils or scales. — 44. Cortinellus.
Volva absent, veil present, usually forming an annulus.
  Stipe eccentric. — 45. Pleurotus.
  Stipe central.
    Lamellae adnate or adnexed. — 46. Armillaria.
    Lamellae free, varying at times to adnexed or adnate.
      Spores hyaline, rarely tinged with brown.
        Pileus viscid. — 47. Limacella.
        Pileus dry. — 48. Lepiota.
      Spores green when fresh, brown in herbarium specimens. — 49. Chlorophyllum.
Volva present, veil absent. — 50. Vaginata.
Volva and veil both present. — 51. Venenarius.

2. **Laccaria tortilis** (Bolt.) Pat. Hymén. Eur. 97. 1887.

Agaricus tortilis Bolt. Hist. Fung. Halifax 41. 1788.
Clitocybe tortilis Sacc. Syll. Fung. 5: 198. 1887.

Pileus membranous, convex, plane or centrally depressed, irregular, closely gregarious or cespitose, 5–10 mm. broad; surface subferruginous, obscurely striate, margin deflexed and sometimes torn; lamellae thick, subdistant, adnate, flesh-colored; spores globose, echinulate, 12–16 μ; stipe short, equal or slightly thickened at the base, stuffed or hollow, twisted, fragile, concolorous, 8–12 mm. long, 0.5–1 mm. thick.

TYPE LOCALITY: England.
HABITAT: Damp places in woods or by roadsides.
DISTRIBUTION: Northeastern United States; also in Europe.
ILLUSTRATIONS: Bolt. Hist. Fung. Halifax *pl. 41, f. A;* Boudier, Ic. Myc. *pl. 59;* Pat. Tab. Fung. *pl. 105.*

3. **Laccaria striatula** Peck, Bull. N. Y. State Mus. 157: 93. 1912.

Clitocybe laccata striatula Peck, Ann. Rep. N. Y. State Mus. 48: 274. 1897.

Pileus very thin, submembranous, convex or nearly plane, gregarious, 12–20 mm. broad; surface glabrous, hygrophanous, buff-red and striatulate when moist, grayish or pale-buff when dry; lamellae broad, distant, adnate, pale-flesh-colored; spores globose or subglobose, verruculose, 11–13 μ; stipe slender, equal, fibrous, hollow, concolorous, 1.5–3 cm. long, 1–2 mm. thick.

TYPE LOCALITY: Albany County, New York.
HABITAT: In wet or damp places.
DISTRIBUTION: Northeastern United States.
ILLUSTRATIONS: Mycologia 3: *pl. 40, f. 4;* Ann. Rep. N. Y. State Mus. 48: *pl. 25, f. 14–18.*

4. **Laccaria laccata** (Scop.) Berk. & Br. Ann. Mag. Nat. Hist. V. 12. 370. 1883.

Agaricus laccatus Scop. Fl. Carn. ed. 2. 2: 444. 1772.
Clitocybe laccata Quél. Champ. Jura Vosg. 55. 1872.

Pileus fleshy, rather thin, convex or nearly plane, sometimes umbilicate or centrally depressed, solitary, gregarious or cespitose, 1.2–5 cm. broad; surface hygrophanous, glabrous, furfuraceous or minutely squamulose, pale-red, buff-red or flesh-red when moist, pale-ochraceous, grayish or buff when dry, margin smooth; lamellae rather broad, thick, subdistant, adnate or decurrent, flesh-colored or pale flesh-colored; spores globose, verruculose, 8–10 μ; stipe long or short, nearly or quite equal, fibrous, firm, straight or flexuous, stuffed, concolorous, 2.5–7.5 cm. long, 2–6 mm. thick.

TYPE LOCALITY: Carniola.
HABITAT: Woods, groves, swamps, mossy places and pastures in wet, dry or sandy soil and even in sphagnum.
DISTRIBUTION: Cosmopolitan.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. 48: *pl. 25, f. 1–13;* Bull. N. Y. State Mus. 116: *pl. 106, f. 1–6;* Cooke, Brit. Fungi *pl. 139* (*179*); Schaeff. Fung. Bavar. *pl. 13;* Sow. Engl. Fungi *pl. 208.*

5. **Laccaria ochropurpurea** (Berk.) Peck, Ann. Rep. N. Y. State Mus. 50: 129. 1897.

Agaricus (*Clitocybe*) *ochropurpureus* Berk. Hook. Lond. Jour. 4: 299. 1845.

Pileus fleshy, firm, subhemispheric or convex becoming plane or slightly centrally depressed, often very irregular and very variable in size and shape, solitary or rarely gregarious, 5–10 cm. broad; surface hygrophanous, purplish-brown when moist, grayish or pale-alutaceous when dry, unpolished, margin decurved; context edible; lamellae thick, distant, broad, adnate or decurrent, purplish; spores globose, verruculose, 8–10 μ; stipe variable, short or long, equal or sometimes thicker in the middle, sometimes at each end, fibrous, solid, concolorous or paler, firm, 3–8 cm. long, 4–12 mm. thick.

TYPE LOCALITY: Columbus, Ohio.
HABITAT: Open grassy or bushy places, or thin woods.
DISTRIBUTION: Temperate North America.
ILLUSTRATIONS: Bull. Chicago Acad. Sci. 7: *pl. 3, f. 2;* Bull. N. Y. State Mus. 116: *pl. 106, f. 7–11.*

DOUBTFUL SPECIES

Agaricus (*Clitocybe*) *glaucipes* Berk. & Curt. Ann. Mag. Nat. Hist. III. 4: 2. 1859. Described from Connecticut. The lamellae are described as white, but were probably dusted with spores.

Agaricus ohiensis Mont. Syll. Crypt. 100. 1856. Collected by Sullivant near Columbus, Ohio. The lamellae are described as long-decurrent, but this may possibly refer to their decurrent teeth.

Clitocybe rubrotincta Berk. & Curt. Jour. Linn. Soc. 10: 284. 1868. Collected by Wright in Cuba. The lamellae are described as decurrent and also thinner than in *Laccaria laccata*.

43. MELANOLEUCA Pat. Tax. Hymén. 159. 1900.

Tricholoma Quél. Champ. Jura Vosg. 38. 1872. Not *Tricholoma* Benth. 1820.
Melaleuca Pat. Hymén. Eur. 96. 1887. Not *Melaleuca* L. 1767.
Glutinaster Earle, Bull. N. Y. Bot. Gard. 5: 433. 1909.

Fleshy, putrescent, solitary or gregarious, rarely cespitose; surface dry or viscid, glabrous or inconspicuously decorated with fibrils or scales; context usually thick; lamellae sinuate or adnexed, rarely varying to adnate; spores hyaline, usually ellipsoid and smooth; stipe central, fleshy, usually stout; veil none or inconspicuous.

Type species, *Tricholoma melaleucum* (Pers.) Quél.

Species occurring in temperate North America, except those confined to the Pacific coast. I.
Species occurring on the Pacific coast. II.
Species occurring in tropical North America. III.

I. SPECIES OCCURRING IN TEMPERATE NORTH AMERICA, EXCEPT THOSE CONFINED TO THE PACIFIC COAST

Surface dry or only slightly viscid, glabrous or indistinctly decorated with fibrils or scales.
 Surface of pileus mostly white or pallid.
  Sporophore with long, slender stipe and thin pileus, resembling *Collybia;* occurring mostly among grass in the open.
   Pileus white, sometimes tinged with yellowish, 5–7.5 cm. broad. 1. *M. alboflavida.*
   Pileus white, at times brownish on the umbo, 8–14 cm. broad. 2. *M. grammopodia.*
   Pileus pale-cinereous or grayish-brown, 4–6.5 cm. broad. 3. *M. subcinerea.*
   Pileus fawn-colored to fuliginous, 3–6 cm. broad. 4. *M. melaleuca.*
  Sporophore not as above; stipe and pileus more normal for the genus.
   Lamellae white, unchanging.
    Pileus acutely umbonate. 5. *M. subacuta.*
    Pileus obtuse or obtusely umbonate.
     Surface of pileus uniformly white or nearly so.
      Sporophores solitary to cespitose, but not united as below.
       Taste acrid or bitter.
        Pileus whitish or pale-gray, innately fibrillose; stipe 2.5–5 cm. long. 6. *M. acris.*
        Pileus white, glabrous, sometimes yellowish and slightly pruinose on the disk; stipe 5–10 cm. long. 7. *M. albissima.*
       Taste neither acrid nor bitter.
        Pileus white tinged with yellow, changing to sulfur-yellow when bruised; stipe with sordid-yellow scales. 8. *M. luteomaculans.*
        Pileus not changing as above when bruised.
         Spores large 11–12.5 × 7.5 μ. 9. *M. silvatica.*
         Spores not more than half as large.
          Context having a pleasant odor.
           Taste mild; lamellae rather distant. 10. *M. pallida.*
           Taste farinaceous; lamellae rather crowded. 11. *M. leucocephaloides.*
          Context having the odor of sour dough; species known only from Alabama. 12. *M. subacida.*
      Sporophores united at the base in a large, fleshy mass; pilei 2.5–5 cm. broad. 13. *M. unifacta.*
     Surface of pileus white, but distinctly darker or differently colored at the center.
      Lamellae very much crowded.
       Pileus small, 2–5 cm. broad; taste mild. 14. *M. Kauffmanii.*
       Pileus larger, 5–12 cm. broad; taste bitter or acrid.
        Taste at first mild, becoming acrid. 15. *M. serratifolia.*

Taste bitter, odor farinaceous. 16. *M. lateraria.*
Lamellae of medium distance or moderately close.
Pileus large, 6–14 cm. broad, becoming yellow or saffron-colored when bruised. 17. *M. subsaponacea.*
Pileus smaller, never over 8 cm. broad, not changing as above when bruised.
Stipe much enlarged at the base; pileus white or yellowish, becoming isabelline to fulvous on drying. 18. *M. Robinsoniae.*
Stipe distinctly radicate, 4–10 cm. long. 19. *M. radicata.*
Stipe not as above.
Lamellae transversely striate or venose. 20. *M. striatifolia.*
Lamellae not as above.
Spores $6.5 \times 5\ \mu$. 21. *M. impolitoides.*
Spores $4.5 \times 3.5\ \mu$. 22. *M. fumidella.*
Lamellae subdistant to distant.
Pileus brownish or grayish-brown at the center; odor and taste strong and unpleasant. 23. *M. terraeolens.*
Pileus reddish-gray at the center; odor and taste not unpleasant. 24. *M. infantilis.*
Lamellae white, changing color with age or on drying.
Sporophore very large; 12–20 cm. broad.
Lamellae becoming pale-salmon or cream-colored; stipe attenuate below. 25. *M. magna.*
Lamellae becoming dirty-yellowish or brownish; stipe decidedly bulbous. 26. *M. praemagna.*
Sporophore smaller, 10 cm. or less broad; lamellae becoming gray, brown, or blackish.
Pileus dingy-white, hygrophanous, usually brownish on the disk, 2.5–5 cm. broad. 27. *M. trentonensis.*
Pileus uniformly white or pallid.
Pileus small, 2–3 cm. broad; lamellae becoming smoky-blue or blackish. 28. *M. fumescens.*
Pileus large, 5–10 cm. broad; lamellae becoming dingy or tinged with reddish-brown. 29. *M. lata.*
Lamellae pallid or yellowish, becoming fulvous or bay with age; context changing quickly to bright-yellow when bruised. 30. *M. Memmingeri.*
Lamellae yellow; pileus white, becoming dark with age. 31. *M. subdura.*
Surface of pileus mostly some shade of yellow.
Lamellae white, unchanging.
Stipe white, solid. 32. *M. edura.*
Stipe white, hollow. 33. *M. fumosolutea.*
Stipe yellow except at the base, solid. 34. *M. sublutea.*
Lamellae white, becoming tinged with salmon.
Pileus bright-yellow, becoming reddish or variously tinted. 35. *M. Davisiae.*
Pileus isabelline, fulvous at the center. 36. *M. unakensis.*
Lamellae white or tinged with pink; odor strong, jessamine-like. 37. *M. odora.*
Lamellae white or pale-yellowish, often darker yellow with age.
Growing on wood; without characteristic odor. 38. *M. Thompsoniana.*
Growing on the ground.
Becoming strongly aromatic. 39. *M. aromatica.*
Not at all aromatic. 40. *M. venenata.*
Lamellae yellow, unchanging.
Pileus pale-honey-yellow; spores $8–9 \times 5.5–6.5\ \mu$. 41. *M. odorifera.*
Pileus dull-saffron-colored; spores $3–4\ \mu$ long. 42. *M. Naucoria.*
Lamellae yellowish, becoming dingy or blackish with age or on drying.
Spores $7.5–10 \times 5–6\ \mu$. 43. *M. chrysenteroides.*
Spores $4 \times 2\ \mu$. 44. *M. thujina.*
Surface of pileus yellowish-gray or subolivaceous, dusky on the disk; species known only from Alabama. 45. *M. alabamensis.*
Surface of pileus mostly green or greenish.
Pileus pallid or glaucous to pale-olive, becoming blackish when bruised. 46. *M. longipes.*
Pileus dingy-green, unchanging when bruised. 47. *M. viriditincta.*
Surface of pileus mostly some shade of red, purple, or lilac.
Pileus small, 5 cm. or less broad.
Pileus flesh-colored, 2–5 cm. broad, lamellae white. 48. *M. paeonia.*
Pileus dull-reddish-purple, 1–2 cm. broad; lamellae purplish to yellowish. 49. *M. microspora.*
Pileus watery-red to violet, 3–5 cm. broad; lamellae whitish to yellowish. 50. *M. ionides.*
Pileus large, 5–10 cm. broad.
Pileus reddish-brown, brown-spotted on drying, lamellae cinereous. 51. *M. maculatescens.*
Pileus pale-alutaceous, lamellae pale-yellow, purplish-brown on drying. 52. *M. tricolor.*
Pileus pale-rosy-avellaneous, becoming brownish when injured; lamellae white tinged with rose. 53. *M. Earleae.*

Surface of pileus mostly some shade of yellowish-brown or brown.
Lamellae white, unchanging.
Pileus thin, hygrophanous, often splitting at the margin. 54. *M. rimosa.*
Pileus not as above.
Lamellae becoming orange when bruised; pileus 2.5–5 cm. broad. 55. *M. submaculata.*
Lamellae not becoming orange when bruised; pileus 4–12 cm. broad.
Pileus subcespitose; spores ellipsoid, 5–6 $\times$2–3 μ. 56. *M. eduriformis.*
Pileus usually cespitose; spores globose, 6 μ. 57. *M. lugubris.*
Pileus not cespitose; spores oblong, 7–8 $\times$3 μ. 58. *M. niveipes.*
Lamellae whitish, at length ochraceous; pileus grayish-tawny, 12–20 cm. broad. 59. *M. gravis.*
Lamellae cinereous, becoming dark-brown or blackish with age or on drying.
Spores oblong-ellipsoid, 7.5 $\times$4 μ; species known only from New York. 60. *M. fuliginea.*
Spores subglobose, 6–7.5 μ; species known only from Alabama. 61. *M. compressipes.*
Lamellae yellow; pileus only 12 mm. broad. 62. *M. inocybiformis.*
Surface of pileus mostly some shade of gray or black.
Lamellae white, unchanging.
Stipe slender, less than 1 cm. thick. 4. *M. melaleuca.*
Stipe at least twice as thick.
Taste disagreeable; spores 5–7 $\times$2–3 μ. 63. *M. subargillacea.*
Taste pleasant; spores 7–9 $\times$5–6 μ. 64. *M. phaeopodia.*
Lamellae whitish or yellowish, slightly changing at times; stipe short.
Pileus avellaneous at the center, fading out to nearly white at the margin. 65. *M. Volkertii.*
Pileus grayish-brown to blackish-brown, margin concolorous; taste acrid. 66. *M. piperata.*
Lamellae whitish tinged with blue; pileus small, blackish-brown. 67. *M. semivestita.*
Lamellae avellaneous to umbrinous.
Lamellae avellaneous with a murinous tint; stipe about 5 mm. thick. 68. *M. praecox.*
Lamellae pale-avellaneous, becoming smoky-umbrinous; stipe about 10 mm. thick. 69. *M. subfuliginea.*
Surface variegated with grayish-tan, brownish, and pinkish-lilac areas; stipe white tinged with lilac; lamellae white to discolored. 70. *M. Tottenii.*
Surface of pileus distinctly viscid and often conspicuously decorated.
Surface glabrous.
Pileus white, at times slightly yellowish at the center.
Lamellae white, scarcely changing on drying. 71. *M. resplendens.*
Lamellae pallid, becoming avellaneous or subfuliginous on drying. 72. *M. subresplendens.*
Pileus brownish-yellow at the center, with a broad, white margin. 73. *M. angustifolia.*
Pileus greenish-yellow; spores 5 $\times$4 μ. 74. *M. intermedia.*
Pileus pale-alutaceous; spores 3 μ. 75. *M. terrifera.*
Pileus pale-pink or rose-red, slightly yellowish at times. 76. *M. Russula.*
Pileus light-pinkish-brown to dark-brown; lamellae white stained with reddish. 77. *M. subtransmutans.*
Pileus yellowish-tawny, tawny-red, or reddish-brown.
Lamellae white, unchanging. 78. *M. viscosa.*
Lamellae whitish or yellowish, becoming dingy or reddish-spotted with age. 79. *M. transmutans.*
Pileus fuliginous or purplish-gray; stipe white. 80. *M. portentosa.*
Surface fibrillose or squamose.
Lamellae white, becoming discolored or spotted with age; pileus tawny-red to tawny-orange. 81. *M. aurantia.*
Lamellae sulfur-yellow, unchanging; pileus pale-yellowish tinged with red. 82. *M. equestris.*
Lamellae white or pale-yellow, unchanging; pileus not as above.
Pileus reaching 13 cm. broad, densely gregarious, yellowish-brown. 83. *M. rhinaria.*
Pileus 6–8 cm. broad, gray, with black fibrils arranged in lines. 84. *M. subterrea.*
Pileus reaching 4 cm. broad, usually with greenish tints.
Disk sooty-brown, very distinct from the broad, paler margin; stipe white. 85. *M. centralis.*
Disk not nearly so distinct as above; stipe mostly tinged with yellow or green.
Pileus conic or convex, usually lobed at the margin. 86. *M. subsejuncta.*
Pileus convex to expanded, margin entire. 87. *M. sejuncta.*

II. SPECIES OCCURRING ON THE PACIFIC COAST

Surface of pileus dry and glabrous.
Sporophore with slender stipe and thin, variously colored pileus, resembling *Collybia.* 4. *M. melaleuca.*
Sporophore not as above.
Surface of pileus mostly white or whitish, rarely darker on the disk.
Pileus 2–5 cm. broad.
Pileus 2 cm. or less broad; stipe 4 cm. long, 2 mm. thick. 88. *M. tenuipes.*

Pileus and stipe considerably larger.
Lamellae very broad; spores 8.5 ×6 μ. — 89. *M. platyphylla.*
Lamellae of medium breadth; spores 5–6 ×3–4 μ. — 90. *M. pinicola.*
Pileus 6–8 cm. broad.
Surface entirely white. — 91. *M. farinacea.*
Surface whitish with a caesious tint, black on the disk. — 92. *M. sublurida.*
Pileus 10–14 cm. broad.
Sporophores gregarious; lamellae becoming cinereous on drying; spores ellipsoid. — 93. *M. Olesonii.*
Sporophores densely cespitose; lamellae not changing as above; spores globose. — 94. *M. submulticeps.*
Surface of pileus light-buff, 10–14 cm. broad; spores ellipsoid, 5–7 ×2.5–4.5 μ. — 95. *M. rudericola.*
Surface of pileus rose-tinted, the ground-color being isabelline, avellaneous, or pale-brown.
Lamellae white, unchanging.
Pileus avellaneous with a rosy tint; lamellae broad, very white in dried specimens. — 96. *M. bicolor.*
Pileus brownish-pink, with browner circular spots; lamellae narrow, yellowish-discolored in dried specimens. — 97. *M. roseibrunnea.*
Lamellae pale-rosy-isabelline, becoming slightly purplish-spotted when bruised or on drying; sporophore having the odor of walnuts in dried specimens. — 98. *M. nuciolens.*
Surface of pileus latericeous; stipe rose-colored. — 99. *M. subvelata.*
Surface of pileus some shade of yellowish-brown.
Pileus fulvous at the center, pale-fulvous near the margin; spores globose, about 3.5 μ. — 100. *M. collybiiformis.*
Pileus umbrinous, margin concolorous; spores ellipsoid, 7–8 ×4 μ. — 101. *M. Harperi.*
Surface of pileus some shade of gray or avellaneous.
Pileus 4–8 cm. broad.
Surface minutely striate except at the center. — 102. *M. striatella.*
Surface not at all striate.
Stipe long, slender, equal. — 103. *M. subcinereiformis.*
Stipe shorter and thicker, about 7 ×2 cm.
Stipe much enlarged below. — 104. *M. avellanea.*
Stipe subequal, not enlarged below. — 105. *M. fumosella.*
Pileus larger, usually 8–15 cm. broad.
Pileus with a prominent umbo, stipe enlarged at the base; sporophores scattered. — 106. *M. portolensis.*
Pileus without an umbo; stipe cylindric; sporophores growing in conspicuous circles. — 107. *M. oreades.*
Surface of pileus viscid or rarely decorated with fibrils or scales.
Pileus white. — 108. *M. secedifolia.*
Pileus sulfur-yellow. — 109. *M. Yatesii.*
Pileus white stained with rusty-brown; growing in good soil. — 110. *M. dryophila.*
Pileus ferruginous; growing in pure sand. — 111. *M. arenicola.*
Pileus pale-yellow tinged with red; lamellae yellow. — 82. *M. equestris.*
Pileus some shade of dark-red.
Lamellae and stipe white. — 112. *M. subannulata.*
Lamellae and stipe pale-rosy-isabelline. — 113. *M. subpessundata.*
Pileus fuliginous or purplish-gray.
Surface smooth; odor none. — 114. *M. avellaneifolia.*
Surface radiate-lineate; odor strong. — 80. *M. portentosa.*

III. SPECIES OCCURRING IN TROPICAL NORTH AMERICA

Lamellae white, pale-yellow, or dirty-brownish.
Pileus dingy-isabelline. — 115. *M. subisabellina.*
Pileus purplish-lilac; stipe concolorous. — 116. *M. dichropus.*
Pileus castaneous; stipe white. — 117. *M. jalapensis.*
Lamellae reddish; pileus latericious.
Spores globose, 3–4 μ. — 118. *M. jamaicensis.*
Spores ovoid, 9–12 ×4–7 μ. — 119. *M. holoporphyra.*

1. Melanoleuca alboflavida (Peck) Murrill.

Agaricus alboflavidus Peck, Ann. Rep. N. Y. State Cab. **23**: 75. 1872.

Pileus fleshy, convex, becoming plane or slightly depressed, sometimes gibbous, 5–7.5 cm. broad; surface glabrous, smooth, moist in wet weather, white, sometimes tinged with yellow, margin at first involute; context white; lamellae narrow, crowded, thin, emarginate, white; spores ellipsoid, 7.5–8.7 ×4–5 μ; stipe very slender, equal, solid, fibrillose-striate, somewhat bulbous, whitish, 7.5–10 cm. long, 6–8 mm. thick.

TYPE LOCALITY: Sandlake, New York.
HABITAT: Fields and thin woods.
DISTRIBUTION: New England and New York to the mountains of Virginia.

2. Melanoleuca grammopodia (Bull. & Vent.) Murrill.

Agaricus grammopodius Bull. & Vent. Champ. Fr. 1: 617. 1809.
Tricholoma grammopodium Quél. Champ. Jura Vosg. 46. 1872.

Pileus rather thin and tough, convex to umbonate-depressed, regular or somewhat lobed, growing in rings, 8–14 cm. broad; surface white, very smooth, glabrous, soft to the touch, slightly radiate-rimose at times, unicolorous or brownish on the umbo, margin entire or lobed, straight but incurved on drying; context thin, white, with pleasant taste and odor; lamellae emarginate, narrow, slightly ventricose, crowded, white; spores ellipsoid, smooth, hyaline, granular, chalk-white in mass, 7.5–8.5 × 4–5 μ; stipe subcylindric to slightly enlarged above and at times bulbous below, glabrous, avellaneous, longitudinally striate, twisted, solid or stuffed, fleshy, 7.5–13 cm. long, 8–15 mm. thick.

TYPE LOCALITY: France.
HABITAT: Grassy ground in fields or woods.
DISTRIBUTION: Northeastern United States.
ILLUSTRATIONS: Barla, Champ. Nice *pl. 46, f. 1–7;* Bres. Funghi Mang. *pl. 32;* Bull. Herb. Fr. *pl. 548, 585, f. 1;* Hussey, Ill. Brit. Myc. 2: *pl. 41;* Hard, Mushrooms *f. 57.*

3. Melanoleuca subcinerea (Peck) Murrill.

Tricholoma subcinereum Peck, Bull. N. Y. State Mus. 131: 27. 1909.

Pileus thin, plane or centrally depressed, 4–6.5 cm. broad; surface subglabrous, whitish, pale-cinereous, or grayish-brown, the center sometimes a little darker and with a slight pruinose appearance; context white, odor strong, taste slightly and tardily acrid; lamellae thin, close, slightly sinuate, white; spores broadly ellipsoid, 7.5–9 × 6–7 μ; stipe central or eccentric, equal or slightly thickened toward the base, solid, silky-fibrillose, whitish or brown externally, brownish within, 4–7.5 cm. long, 6–14 mm. thick.

TYPE LOCALITY: Pittsford, Monroe County, New York.
HABITAT: On earth or buried wood in a cellar.
DISTRIBUTION: Massachusetts and New York.

4. Melanoleuca melaleuca (Pers.) Pat. Tax. Hymén. 159. 1900.

Agaricus melaleucus Pers. Syn. Fung. 355. 1801.
Tricholoma melaleucum Quél. Champ. Jura Vosg. 47. 1872.
Agaricus humilis Pers. Syn. Fung. 360. 1801.
? *Agaricus exscissus* Fries, Syst. Myc. 1: 114. 1821.
Tricholoma planiceps Peck, Bull. N. Y. State Mus. 157: 35. 1912.

Pileus thin, convex to plane, depressed around the small umbo, solitary, 3–6 cm. broad; surface glabrous, fuliginous to fawn-colored, margin incurved when young; context thin, sweet, edible, inodorous; lamellae very white, ventricose, emarginate, crowded; spores ovoid-ellipsoid, finely echinulate, hyaline, uninculeate, 7–9 × 5–6 μ; stipe elastic, variable in color and size, subglabrous, slender, often enlarged above or below, 4–10 cm. long.

TYPE LOCALITY: Europe.
HABITAT: Woods, fields, and lawns.
DISTRIBUTION: Throughout temperate regions.
ILLUSTRATIONS: Barla, Champ. Nice *pl. 46, f. 8–15;* Cooke, Brit. Fungi *pl. 119 (119), 1127;* Fries, Ic. Hymen. *pl. 44;* Gill. Champ. Fr. *pl. 90 (682);* Mycologia 3: *pl. 49, f. 4.*

5. Melanoleuca subacuta (Peck) Murrill.

Tricholoma subacutum Peck, Ann. Rep. N. Y. State Mus. 42: 112. 1889.

Pileus at first ovoid or broadly conic, then convex and subacutely umbonate, 4–7.5 cm. broad; surface dry, silky and obscurely virgate with minute innate fibrils, whitish tinged with smoky-brown or bluish-gray, darker on the umbo; context white, taste acrid or peppery; lamellae rather close, slightly adnexed, white; spores broadly ellipsoid or subglobose, 6–7.5 × 6–6.5 μ; stipe equal, stuffed or hollow, silky-fibrillose, white, 5–10 cm. long, 6–12 mm. thick.

TYPE LOCALITY: North Elba, New York.
HABITAT: In spruce and balsam fir woods.
DISTRIBUTION: New York and New Brunswick.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. 42: *pl. 1, f. 1–5;* Bull. N. Y. State Mus. 67: *pl. 82, f. 7–14.*

6. Melanoleuca acris (Peck) Murrill.

Tricholoma acris Peck, Bull. Torrey Club **24**: 139. 1897.

Pileus fleshy, but rather thin, broadly convex to nearly plane, slightly depressed in the center, 4–6.5 cm. broad; surface dry, innately fibrillose, whitish or pale-gray, margin wavy; context white or whitish, taste acrid; lamellae close, adnexed, subventricose, white; spores subglobose, 5–6×4–5 μ; stipe equal or slightly tapering downward, short, slightly fibrillose, stuffed or hollow, white, 2.5–5 cm. long, 6–10 mm. thick.

TYPE LOCALITY: Worcester, Massachusetts.
HABITAT: Thin deciduous woods.
DISTRIBUTION: New England to Virginia and west to the Rocky Mountains.

7. Melanoleuca albissima (Peck) Murrill.

Agaricus (Clitocybe) albissimus Peck, Bull. Buffalo Soc. Nat. Sci. **1**: 45. 1873.
Agaricus (Tricholoma) alboides Peck, Ann. Rep. N. Y. State Mus. **32**: 25. 1880.
Agaricus (Clitocybe) patuloides Peck, Ann. Rep. N. Y. State Mus. **32**: 25. 1880.
Clitocybe subsimilis Peck, Ann. Rep. N. Y. State Mus. **41**: 61. 1888.
Tricholoma nobile Peck, Ann. Rep. N. Y. State Mus. **42**: 113. 1889.
Clitocybe piceina Peck, Bull. Torrey Club **31**: 178. 1904.

Pileus fleshy, tough, convex, becoming plane or depressed, obtuse, slender or robust, solitary to cespitose, 5–10 cm. broad; surface very dry, smooth, glabrous, white, sometimes yellowish and slightly pruinose on the disk, rarely wholly yellowish, margin at first involute; context white, odor often decided, taste acrid or bitter; lamellae emarginate with a decurrent tooth, crowded to subdistant, distinct, whitish, yellowish when bruised; spores subglobose to broadly ellipsoid, minutely asperulate, hyaline, 5–7×4–6 μ; stipe solid, elastic, equal or tapering upward, externally fibrous, obsoletely pruinose at the apex, often tomentose at the base, white, 5–10 cm. long, 8–16 mm. thick.

TYPE LOCALITY: Croghan, New York.
HABITAT: In leaf-mold in coniferous or mixed woods.
DISTRIBUTION: Canada to Virginia and west to Michigan.
ILLUSTRATION: Hard, Mushrooms *f. 52.*
EXSICCATI: Shear, N. Y. Fungi *5.*

8. Melanoleuca luteomaculans (Atk.) Murrill.

Tricholoma luteomaculans Atk. Ann. Myc. **7**: 376. 1909.

Pileus convex to expanded, depressed, somewhat undulate, solitary, 5–7 cm. broad; surface white tinged with yellow, changing to sulfur-yellow when bruised, margin with short, distant, radiating furrows; context firm, taste rather unpleasant; lamellae emarginate, crowded, white becoming dingy; spores subglobose, smooth, granular, 4–5×3.5–4.5 μ; stipe enlarged below, whitish tinged with yellow, floccose-scaly with sordid-yellow scales, 4–5 cm. long, about 1 cm. thick.

TYPE LOCALITY: Enfield Gorge, Ithaca, New York.
HABITAT: On the ground among leaves.
DISTRIBUTION: New York and North Carolina.

9. Melanoleuca silvatica (Peck) Murrill.

Tricholoma silvaticum Peck, Ann. Rep. N. Y. State Mus. **42**: 113. 1889.

Pileus convex or nearly plane, subumbonate, small, well-formed, 2.5–4 cm. broad; surface dry, glabrous, whitish; margin decurved; context thin, white, with farinaceous taste but no odor; lamellae broad, ventricose, subdistant, adnexed, white, deeply sinuate; spores large, ellipsoid, 11–12.5×7.5 μ; stipe equal or slightly tapering upward, glabrous or obscurely fibrillose, slightly mealy or pruinose at the apex, solid, firm, 2.5–5 cm. long, 4–8 mm. thick.

TYPE LOCALITY: North Elba, New York.
HABITAT: Among mosses or fallen leaves in woods.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **42**: *pl. 2, f. 16–19;* Bull. N. Y. State Mus. **67**: *pl. 82, f. 1–6.*

10. **Melanoleuca pallida** (Peck) Murrill.

Tricholoma pallidum Peck, Bull. Torrey Club **24**: 139. 1897.

Pileus fleshy, thick at the center, convex or nearly plane, obtuse, 2.5–6.5 cm. broad; surface glabrous, sometimes obscurely spotted on the disk with thin, appressed, brownish squamules, somewhat shining, whitish tinged with yellow or brownish-yellow, context white, sometimes slowly assuming a faint pinkish hue when bruised, taste mild; lamellae broad, subdistant, rounded behind or adnexed, often eroded on the edge, white; spores ellipsoid, 5–6 × 4 μ; stipe equal or slightly thickened at the base, glabrous, white, 2.5–5 cm. long, 6–12 mm. thick.

Type locality: Worcester, Massachusetts.
Habitat: Thin deciduous woods.
Distribution: Massachusetts, New York, and Colorado.

11. **Melanoleuca leucocephaloides** (Peck) Murrill.

Tricholoma leucocephaloides Peck, Ann. Rep. N. Y. State Mus. **49**: 16. 1897.

Pileus thin, convex, obtuse or umbonate, 4–6 cm. broad; surface yellowish or grayish-brown when moist, white or whitish when dry, glabrous, hygrophanous; context white, farinaceous; lamellae adnate or slightly emarginate, moderately close, whitish; spores ellipsoid, 5–6 × 4 μ; stipe equal or tapering upward, glabrous, sometimes mealy at the apex, whitish, solid, 4–6 cm. long, 5–8 mm. thick.

Type locality: Delmar, New York.
Habitat: Under pines or balsam firs.
Distribution: New York.

12. **Melanoleuca subacida** Murrill, sp. nov.

Pileus convex to expanded, gregarious, reaching 5–6 cm. broad; surface smooth, glabrous, subviscid, white, margin incurved, entire; context white, with a pleasant taste and the odor of sour dough; lamellae mostly entire, with a few short ones inserted near the margin, broad, sinuate, ventricose, subcrowded, pure-white, unchanging; spores subglobose, smooth, hyaline, granular, 5–6 × 4–5 μ; stipe tapering downward, smooth, glabrous, white, spongy within, 5 cm. long, 1 cm. thick.

Type collected on the ground in pine woods near Auburn, Alabama, December 15, 1900, *Mrs. F. S. Earle*.
Distribution: Known only from the type locality.

13. **Melanoleuca unifacta** (Peck) Murrill.

Tricholoma unifactum Peck, Bull. N. Y. State Mus. 105: 36. 1906.

Pileus fleshy but thin, convex, often irregular, sometimes eccentric because of its closely cespitose mode of growth, 2.5–5 cm. broad; surface whitish; context tender, whitish, taste mild, odor not decided; lamellae thin, narrow, close, rounded behind, slightly adnexed, sometimes forked near the base, white; spores hyaline, subglobose, 4–5 μ; stipes equal or thicker at the base, solid, fibrous, white, united at the base in a large fleshy mass, 2.5–5 cm. long, 6–10 mm. thick.

Type locality: Horicon, Warren County, New York.
Habitat: Under hemlock trees.
Distribution: Known only from the type locality.
Illustration: Bull. N. Y. State Mus. 105: *pl. 94*.

14. **Melanoleuca Kauffmanii** Murrill, sp. nov.

Pileus small, thin, convex to nearly plane, cespitose, 2–5 cm. broad; surface smooth, subglabrous, minutely floccose on the disk, pale-brownish-cinereous with a tinge of drab, darker at the center; margin thin, regular, concolorous, incurved when young or on drying; context whitish, drying easily, taste mild; lamellae somewhat decurrent, at length emarginate, plane, very crowded and very narrow, pallid to drab-colored, scarcely changing when bruised, isabelline in dried specimens; spores ellipsoid, smooth, hyaline, 5–6 × 2–3 μ; stipe rather slender, curved and attenuate above, fibrillose, whitish, tinged like the pileus, solid, 4–6 cm. long, 4–6 mm. thick.

Type collected in soil mixed with leaf-mold at Whitmore, Michigan, September 14, 1907, *C. H. Kauffman*.
Distribution: Known only from the type locality.

15. **Melanoleuca serratifolia** (Peck) Murrill.

Tricholoma serratifolium Peck, Ann. Rep. N. Y. State Mus. 46: 102. 1894.

Pileus fleshy, firm, often irregular, convex to subplane, 5–10 cm. broad; surface white, light-brown or yellowish-brown at the center, dry, silky or floccose-squamulose; context white or whitish, taste at first mild becoming acrid; lamellae adnexed, crowded, broad, the edges serrate or erose, white; spores ellipsoid or subglobose, $5–6 \times 5\ \mu$; stipe short, stout, white, solid, 2.5 cm. long, 6–12 mm. thick.

TYPE LOCALITY: Shokan, New York.
HABITAT: On the ground in woods.
DISTRIBUTION: New York.

16. **Melanoleuca lateraria** (Peck) Murrill.

Agaricus (*Tricholoma*) *laterarius* Peck, Bull. Buffalo Soc. Nat. Sci. 1: 43. 1873.

Pileus convex or nearly plane, sometimes slightly depressed in the center, gregarious to cespitose, 5–12 cm. broad; surface dry, pruinose, white to rosy-isabelline, the disk often tinged with brick-red or brown; margin incurved when young, then marked with slight, subdistant, short, radiating ridges; context white, odor farinaceous, taste bitter; lamellae plane in mass, narrow, crowded, emarginate, decurrent in slight lines, white; spores globose, $4–6\ \mu$; stipe nearly equal, solid, white, 5–7.5 cm. long, 6–10 mm. thick.

TYPE LOCALITY: Worcester, New York.
HABITAT: On rotten wood or leaf-mold in woods.
DISTRIBUTION: Northeastern United States.
ILLUSTRATION: Hard, Mushrooms *f. 47*.

17. **Melanoleuca subsaponacea** (Peck) Murrill.

Tricholoma subsaponaceum Peck, Bull. N. Y. State Mus. 157: 35. 1912.

Pileus fleshy, compact, flexible, convex or nearly plane, 6–14 cm. broad; surface glabrous, whitish, creamy-white, or pallid on the margin, smoky-brown or alutaceous in the center, sometimes marked with a row of pallid or watery spots near the margin, assuming yellow or saffron hues when cut or bruised; context white, becoming concolorous when cut or bruised, odor pleasant like anise, taste farinaceous; lamellae broad, close, adnexed or nearly free, whitish; spores broadly ellipsoid or subglobose, $5–6 \times 4–5\ \mu$; stipe variable, equal or enlarged at the top or at the base, sometimes compressed, often abruptly narrowed at the base and radicating, silky-fibrillose, solid becoming hollow with age, whitish, becoming concolorous when cut or bruised, 4–5 cm. long, 1.5–3 cm. thick.

TYPE LOCALITY: Rockville, Indiana.
HABITAT: Among fallen leaves in woods.
DISTRIBUTION: Massachusetts, New York, and Indiana.

18. **Melanoleuca Robinsoniae** Murrill, sp. nov.

Pileus fleshy, convex to subexpanded, somewhat irregular, cespitose, 4–7 cm. broad; surface smooth, glabrous, dry, white or yellowish, slightly darker at the center, isabelline to fulvous on drying, margin thin, concolorous, inflexed when young; context firm, white, rather thick at the center; lamellae sinuate with decurrent lines, of medium breadth and distance, firm, white; spores ellipsoid, smooth, hyaline, about $7 \times 5\ \mu$; stipe short, rather tough, much enlarged at the base, smooth, white, glabrous, 3–7 cm. long, 1–2.5 cm. thick.

Type collected on the ground among herbaceous plants at Yellowstone Lake, Wyoming, 2300 m. elevation, August 9, 1912, *Winifred J. Robinson 12*.
DISTRIBUTION: Known only from the type locality.

19. **Melanoleuca radicata** (Peck) Murrill.

Tricholoma radicatum Peck, Bull. N. Y. State Mus. 67: 22. 1903.

Pileus fleshy, firm, umbraculiform or broadly convex, 5–8 cm. broad; surface pale-grayish-brown, darker and tinged with reddish-brown in the center, dry, minutely silky-fibrillose or obscurely fibrillose-squamulose, somewhat shining, cuticle separable, margin thin; context white, edible, taste disagreeable, losing its unpleasant flavor on cooking; lamellae emarginate,

adnexed, having a decurrent tooth, close, thin, white; spores broadly ellipsoid, 5–6 × 4–5 μ; stipe firm, nearly equal, distinctly radicate, slightly fibrillose, white, fistulose, 4–10 cm. long, 6–10 mm. thick.

TYPE LOCALITY: North Elba, New York.
HABITAT: Under coniferous trees.
DISTRIBUTION: New York and Massachusetts.
ILLUSTRATIONS: Bull. N. Y. State Mus. 67: *pl. 82, f. 15–19.*

20. Melanoleuca striatifolia (Peck) Murrill.

Agaricus (Tricholoma) striatifolius Peck, Ann. Rep. N. Y. State Mus. **30**: 37. 1878.

Pileus convex or nearly plane, 5–7.5 cm. broad; surface dry, subglabrous, somewhat shining, often obscurely dotted or squamulose with innate fibrils, grayish or grayish-brown, sometimes tinged with red; context white, with peculiar odor; lamellae rather close, rounded behind, transversely striate or venose, white; spores subglobose or broadly ellipsoid, 4–5 μ; stipe slightly thickened at the base, hollow, chalky-white, 2.5–5 cm. long, 6–12 mm. thick.

TYPE LOCALITY: Mechanicsville, New York.
HABITAT: On the ground in woods.
DISTRIBUTION: New York, Massachusetts, and North Carolina.

21. Melanoleuca impolitoides (Peck) Murrill.

Agaricus (Tricholoma) impolitoides Peck, Ann. Rep. N. Y. State Mus. **32**: 25. 1880.

Pileus convex to expanded, obtuse, 5–7 cm. broad; surface dry, fibrillose-tomentose, whitish, the disk usually brownish and at length squamose, sometimes distantly striate on the margin; context white, taste farinaceous; lamellae emarginate, close, whitish; spores ellipsoid, 6.5 × 5 μ; stipe equal, slightly fibrillose, white, solid, 7–10 cm. long, 6–10 mm. thick.

TYPE LOCALITY: Gansevoort, New York.
HABITAT: Ground in woods.
DISTRIBUTION: Known only from the type locality.

22. Melanoleuca fumidella (Peck) Murrill.

Agaricus (Tricholoma) fumidellus Peck, Bull. Buffalo Soc. Nat. Sci. **1**: 44. 1873.

Pileus convex, then expanded, subumbonate, 2.5–5 cm. broad; surface smooth, moist, at times rimose-areolate, dingy-white or clay-color clouded with brown, becoming paler when dried, disk darker than margin; lamellae close, subventricose, whitish; spores 4.5 × 3.5 μ; stipe equal, smooth, solid, splitting readily, whitish, 5–7.5 cm. long, 4–6 mm. thick.

TYPE LOCALITY: New Scotland, New York.
HABITAT: On the ground in woods.
DISTRIBUTION: New York, Massachusetts, Connecticut, New Jersey, and North Carolina.

23. Melanoleuca terraeolens (Peck) Murrill.

Agaricus (Tricholoma) terraeolens Peck, Ann. Rep. N. Y. State Mus. **38**: 84. 1885.

Pileus thin, convex or nearly plane, 1–1.5 cm. broad; surface slightly silky-fibrillose, whitish with a brownish or grayish-brown, slightly prominent disk; context with a strong and unpleasant odor and taste; lamellae subdistant, emarginate, white; spores subglobose or broadly ellipsoid, 6–7.5 × 5–6.5 μ; stipe equal, slightly silky, shining, stuffed or hollow, white, 2.5–4 cm. long, about 4 mm. thick.

TYPE LOCALITY: South Ballston, New York.
HABITAT: Under ground-hemlock.
DISTRIBUTION: Known only from the type locality.

24. Melanoleuca infantilis (Peck) Murrill.

Tricholoma infantile Peck, Bull. N. Y. State Mus. 1^2: 5. 1887.

Pileus thin, convex or nearly plane, 1–2.5 cm. broad; surface smooth, minutely silky, moist in wet weather, reddish-gray, margin at first incurved and whitish; often irregular with age; lamellae subdistant, plane or slightly ventricose, often eroded on the edge, whitish; spores

broadly ellipsoid, often with a shining nucleus, 7.5–8.7 × 5–6 µ; stipe short, equal or tapering upward, hollow, slightly silky, concolorous or a little paler, 2.5–4 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Sandlake, New York.
HABITAT: Gravelly soil in fields.
DISTRIBUTION: Known only from the type locality.

25. **Melanoleuca magna** (Banning & Peck) Murrill.

Tricholoma magnum Banning & Peck; Peck, Ann. Rep. N. Y. State Mus. **44**: 179. 1892.

Pileus fleshy, hemispheric to expanded, 15 cm. broad; surface smooth, silky, cream-colored; context white, firm; lamellae white then pale-salmon or cream-colored, adnate, emarginate, not crowded; spores not present; stipe short, solid then hollow, base attenuate.

TYPE LOCALITY: Baltimore, Maryland.
DISTRIBUTION: Known only from the type locality.

26. **Melanoleuca praemagna** Murrill, sp. nov.

Pileus large and fleshy, convex to plane, becoming deeply fissured with age or on drying, gregarious, reaching 12–20 cm. broad; surface dry, smooth, glabrous, white, margin involute and minutely downy when young, becoming expanded and glabrous; context thick, white; lamellae sinuate-adnexed, often with a decurrent tooth, broad, ventricose, crowded, white, becoming dirty-yellowish or brownish on drying; spores ellipsoid, smooth, hyaline, pure-white in mass, 6–7 × 3–4 µ; stipe very short, thick and bulbous, smooth, glabrous, white, reaching 5–6 cm. long and 4–5 cm. thick, the bulb being nearly twice this thickness.

Type collected on the crumbling walls of an old sod-house in Saskatchewan, Canada, September 6, 1913, *L. H. Pennington*. Also collected on high land under sagebrush, near Gunnison, Colorado, August 24, 1899, *E. Bartholomew 2611½*.
DISTRIBUTION: Saskatchewan and Colorado.

27. **Melanoleuca trentonensis** (Peck) Murrill.

Agaricus (*Tricholoma*) *trentonense* Peck, Ann. Rep. N. Y. State Mus. **24**: 60. 1872.

Pileus thin, convex or nearly plane, often irregular, gregarious or subcespitose, 2.5–5 cm. broad; surface glabrous or subvirgate, hygrophanous, slightly striatulate on the margin when moist, dingy-white, the disk generally brown; lamellae very narrow, crowded, slightly emarginate, white inclining to yellowish; spores ellipsoid, pointed at one end, smooth, hyaline, 5–7 × 3–4 µ; stipe short, equal, solid, slightly striate, white, 2.5–4 cm. long, 6–10 mm. thick.

TYPE LOCALITY: Trenton Falls, New York.
HABITAT: Soil and rotten wood in woods.
DISTRIBUTION: New York.

28. **Melanoleuca fumescens** (Peck) Murrill.

Agaricus (*Tricholoma*) *fumescens* Peck, Ann. Rep. N. Y. State Mus. **31**: 32. 1879.

Pileus convex or expanded, 2.5 cm. broad; surface dry, clothed with a very minute appressed tomentum, whitish; lamellae narrow, crowded, rounded behind, whitish or pale-cream-colored, changing to smoky-blue or blackish when bruised or on drying; spores oblong-ellipsoid, 5–6.5 µ long; stipe short, cylindric, whitish, 2.5–4 cm. long, 4–6 mm. thick.

TYPE LOCALITY: Copake, New York.
HABITAT: Ground in woods.
DISTRIBUTION: New York.
ILLUSTRATION: Hard, Mushrooms *f. 54*.

29. **Melanoleuca lata** (Peck) Murrill.

Tricholoma latum Peck, Bull. N. Y. State Mus. 167: 31. 1913.

Pileus fleshy, firm but flexible, broadly convex or nearly plane, gregarious, reaching 5–10 cm. broad; surface moist, glabrous, white or whitish; context white, taste diagreeable; lamellae plane or slightly arcuate in mass, narrow, close, rounded behind, adnexed, white or whitish, becoming dingy or tinged with reddish-brown when old; spores oblong or subfusiform, 10–12 × 3.5–4 µ; stipe short, nearly equal, solid or stuffed, slightly pruinose at the top, more or less whitish-tomentose at the base, colored like the pileus, 2.5–5 cm. long, 1.5–2 cm. thick.

TYPE LOCALITY: Vaughns, New York.
HABITAT: In woods.
DISTRIBUTION: Known only from the type locality.

30. **Melanoleuca Memmingeri** Murrill, sp. nov.

Pileus convex, regular, gregarious, 5–10 cm. broad; surface dry, subtomentose, white, light-tan to brownish at the center, becoming glabrous in spots and retaining the impression of finger marks, margin thin, entire; context fleshy, rather thin, with earthy odor and taste, changing quickly to bright-yellow and finally to brown when cut or bruised; lamellae sinuate, very close, rather narrow, fragile, apparently white or light-yellow when fresh, becoming fulvous or bay with age; spores broadly ellipsoid, smooth, hyaline, granular, $6 \times 5\ \mu$; stipe long, tapering upward, enlarged or subbulbous below, densely tomentose, dry, white, becoming fulvous when bruised, solid, fragile, about 10 cm. long and 1–2 cm. thick, being nearly twice that thickness at the base.

Type collected in leaf-mold in deciduous woods at Flat Rock, North Carolina, 1911, *E. R. Memminger.*
DISTRIBUTION: Known only from the type locality.

31. **Melanoleuca subdura** (Banning & Peck) Murrill.

Tricholoma subdurum Banning & Peck; Peck, Ann. Rep. N. Y. State Mus. **44**: 179. 1892.

Pileus hemispheric to expanded, about the size and shape of *Tricholoma personatum;* surface white, becoming dark with age, margin undulate; context firm, tenaceous; lamellae forking, adnexed, crowded, yellow; spores not examined; stipe stout, attenuate above, white, enlarged at the base, solid, 6.5 cm. long.

TYPE LOCALITY: Druid Hill Park, Baltimore, Maryland.
HABITAT: In woods.
DISTRIBUTION: Known only from the type locality.

32. **Melanoleuca edura** (Banning & Peck) Murrill.

Tricholoma edurum Banning & Peck; Peck, Ann. Rep. N. Y. State Mus. **44**: 180. 1892.

Pileus at first convex, obtuse, thick, fleshy, expanded with age, with a slight central depression, gregarious, 10–12.5 cm. broad; surface undulating, hygrophanous, at first dingy-white or alutaceous, darker at the center, cuticle thin, easily separable, margin at first involute, expanding unequally, sometimes lobed; context mild, odor pleasant but powerful, resembling that of the common mushroom; lamellae white or cream-colored, adnexed, not crowded except at the margin, easily separable from the context; spores subglobose, hyaline, 6–7.5 μ; stipe white, firm, thickened at the base, tapering upward, sometimes nearly equal, at first solid, then stuffed, 7.5–10 cm. long.

TYPE LOCALITY: Baltimore, Maryland.
HABITAT: Among leaves in woods.
DISTRIBUTION: Known only from the type locality.

33. **Melanoleuca fumosolutea** (Peck) Murrill.

Agaricus (*Tricholoma*) *fumosoluteus* Peck, Ann. Rep. N. Y. State Mus. **27**: 92. 1874.

Pileus fleshy, convex or nearly plane, sometimes gregarious, 5–7.5 cm. broad; surface moist, glabrous, smoky-yellow; context white, tinged with yellow under the cuticle, taste farinaceous; lamellae broad, close, rounded behind and deeply emarginate, white; spores subglobose, 4.5–6 μ; stipe stout, glabrous, hollow, white, 7.5–10 cm. long, 8–12 mm. thick.

TYPE LOCALITY: Forestburgh, Sullivan County, New York.
HABITAT: Ground in woods.
DISTRIBUTION: New York and Maine.

34. **Melanoleuca sublutea** (Peck) Murrill.

Tricholoma subluteum Peck. Bull. N. Y. State Mus. 75: 21. 1904.

Pileus broadly campanulate becoming convex, umbonate, 5–10 cm. broad; surface obscurely fibrillose, yellow; context white; lamellae close, emarginate, adnexed, white; spores globose, 5–6 μ; stipe equal or slightly tapering upward, solid, fibrillose, yellow, whitish at the pointed base, white within, 7.5–10 cm. long, 8–16 mm. thick.

TYPE LOCALITY: Lake Pleasant, New York.
HABITAT: Under coniferous trees.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATIONS: Bull. N. Y. State Mus. 75: *pl. 0, f. 26–29.*

35. Melanoleuca Davisiae (Peck) Murrill.

Tricholoma Davisiae Peck, Bull. Torrey Club **27**: 611. 1900.

Pileus fleshy, thin except in the center, very fragile, at first rounded, becoming convex or nearly plane, acutely or bluntly umbonate, 4–10 cm. broad; surface dry, pruinose or slightly pulverulent, floccose-squamulose toward the margin, bright-yellow when young and often tinged with red or green and showing changeable or iridescent hues, becoming paler with age and assuming pinkish or salmon tints, brown or purplish-brown in the center, margin thin, involute, often split; context white, taste farinaceous, then disagreeable; lamellae broad, subdistant, rounded behind and somewhat ventricose, adnexed, whitish becoming tinged with salmon, especially on the edge; spores broadly ellipsoid or subglobose, $5–6 \times 5\ \mu$; stipe nearly equal, straight or curved, stuffed or slightly hollow, fibrous, penetrating the earth deeply, white externally and within, 5–10 cm. long, 8–13 mm. thick.

TYPE LOCALITY: Falmouth, Maine.
HABITAT: Among fallen leaves in pine woods.
DISTRIBUTION: Maine.

36. Melanoleuca unakensis Murrill, sp. nov.

Pileus convex to nearly plane, gibbous, gregarious to subcespitose, reaching 5–8 cm. broad; surface moist, smooth, glabrous, isabelline, fulvous at the center and fading toward the margin, which is entire and sharply incurved on drying; context white, fleshy, very rigid when dry; lamellae sinuate-adnexed, plane, crowded, firm, white tinged with rosy-isabelline; spores globose, smooth, hyaline, $4–6\ \mu$; stipe very long, equal, smooth, subglabrous above, tomentose below, white at the apex, changing to grayish or glaucous on drying, cream-colored below, not changing, solid or spongy within, very rigid when dry, often twisted, about 10–13 cm. long, 1 cm. thick.

Type collected on a dead pine log in mixed woods at Unaka Springs, Tennessee, August 18–24, 1904, *W. A. Murrill 965*. What appears to be the same species collected on dead wood at Rochdale, Massachusetts, September 17, 1911, *E. D. Clark*.
DISTRIBUTION: Tennessee and probably Massachusetts.

37. Melanoleuca odora (Peck) Murrill.

Tricholoma odorum Peck, Bull. Torrey Club **25**: 321. 1898.

Pileus fleshy, convex, becoming nearly plane or slightly depressed, subumbonate, 2.5–5 cm. broad; surface glabrous, shining when young, soft like kid, yellowish or pale-tan-colored; context yellow, flavor at first nutty then farinaceous, odor strong, jessamine-like; lamellae broad, rounded behind, adnexed, easily separating from the stem, thick, white or tinged with pink; spores ellipsoid, $7.5–10 \times 5–6\ \mu$; stipe equal, sometimes slightly bulbous, stuffed, silky-fibrillose, concolorous, but pale-yellow toward the base and white and pruinose at the top, 5–7.5 cm. long, 6–10 mm. thick.

TYPE LOCALITY: Tacoma Park, District of Columbia.
HABITAT: Among fallen leaves in moist places in woods.
DISTRIBUTION: Known only from the type locality.

38. Melanoleuca Thompsoniana Murrill.

Agaricus (*Tricholoma*) *flavescens* Peck, Bull. Buffalo Soc. Nat. Sci. **1**: 42. 1873. Not *A. flavescens* Wallr. 1833.

Pileus large and attractive, convex to plane with a broad umbo, sometimes splitting with age, gregarious, reaching 10 cm. broad; surface dry, glabrous, somewhat rimose, flavous over the whole surface when young, becoming dark-luteous at the center and flavous or cream-colored toward the margin; context thin, white or yellowish; lamellae adnate, becoming slightly sinuate and seceding, rather crowded and narrow, lemon-yellow when young, becoming flavo-luteous with age, brownish on drying; spores subglobose, smooth, hyaline, $5–7\ \mu$; stipe long, equal, longitudinally striate, glabrous, lemon-yellow, fleshy, firm, 14 cm. long, 2–2.5 cm. thick.

TYPE LOCALITY: Bethlehem, New York.
HABITAT: On and about old pine stumps.
DISTRIBUTION: New York, Massachusetts, and North Carolina.

39. **Melanoleuca aromatica** Murrill, sp. nov.

Pileus spongy-fleshy, convex to expanded, obtuse or slightly umbonate, 4–10 cm. broad; surface uniformly buff with a grayish tint, minutely innately floccose-tomentose, moist, smooth, not hygrophanous, margin thin, concolorous, incurved; context white, moist, thin, taste farinaceous, odor in dried specimens strongly aromatic and resembling that of *Lactaria camphorata;* lamellae adnexed, slightly emarginate, plane or becoming subventricose, subcrowded, of medium breadth, dingy-white, distinctly yellowish with age; spores ellipsoid, smooth, hyaline, $6–7 \times 2.5–3.5\ \mu$; stipe straight or curved at the base, cylindric above, much enlarged below, pallid, fibrillose, pruinose at the apex, densely mycelioid-tomentose at the base, spongy-stuffed to hollow, about 10 cm. long, 5–10 mm. thick above, 2–3 cm. thick below.

Type collected on the ground among decaying leaves in woods in Cascade Glen, near Ann Arbor, Michigan, October 11, 1907, *C. H. Kauffman.*
DISTRIBUTION: Known only fron the type locality.

40. **Melanoleuca venenata** (Atk.) Murrill.

Tricholoma venenatum Atk. Bot. Gaz. **46**: 461. 1908.

Pileus fleshy, convex to plane or subrepand, subumbonate, 4–7 cm. broad; surface moist, not viscid, minutely fibrous-scaly, pale-buff to pale-clay-colored, the scales possessing the darker color, under a lens some of them appearing nearly black, subtomentose in the center, margin thin; context white with a dull-clay-colored tint and stains, poisonous, odor and taste mild; lamellae adnexed, broadly sinuate, subdistant, whitish, thin, dull-clay-colored, especially when bruised; spores ovoid to broadly ellipsoid, hyaline, smooth, $5–7 \times 3.5–5\ \mu$; stipe subbulbous, fibrous, striate, solid, sordid-white, becoming dull-clay-colored when handled, 4–8 cm. long, 1–1.5 cm. thick.

TYPE LOCALITY: Detroit, Michigan.
HABITAT: Open grassy woods.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATIONS: Bot. Gaz. **46**: *f. 1, 2.*

41. **Melanoleuca odorifera** Murrill, sp. nov.

Pileus thick, fleshy, convex, gregarious, 3–4 cm. broad; surface dry, smooth, innately fibrillose, pale-honey-yellow, fading with age, unicolorous, margin involute, concolorous; context rather thick, concolorous, of mild flavor, odor strong, suggesting chlorin and sour dough; lamellae plane, rather broad and thick, sinuate, subcrowded, colored like the pileus; spores ellipsoid, smooth, hyaline, $8–9 \times 5.5–6.5\ \mu$; stipe subequal, slightly larger below, concolorous, glabrous, whitish-mycelioid at the base, thick, hollow, 5–7 cm. long, 1 cm. thick.

Type collected in humus in moist woods at Redding, Connecticut, August 26, 1902, *F. S. Earle 1234.*
DISTRIBUTION: Known only from the type locality.

42. **Melanoleuca Naucoria** Murrill.

Agaricus (*Tricholoma*) *fallax* Peck, Bull. Buffalo Soc. Nat. Sci. **1**: 44. 1873. Not *A. fallax* Lasch, 1829.

Pileus firm, convex or nearly plane, rarely centrally depressed, 0.5–1.5 cm. broad; surface moist in wet weather, glabrous, dull-saffron, subochraceous, or reddish-yellow; context yellowish when dry; lamellae narrow, close, tapering outwardly, rounded behind, yellow; spores minute, ellipsoid, 3–4 μ long; stipe slender, glabrous, slightly tomentose at the base, equal or tapering downward, stuffed or hollow, concolorous above, 2.5 cm. long, 2–4 mm. thick.

TYPE LOCALITY: North Elba, New York.
HABITAT: Ground under spruce and balsam trees.
DISTRIBUTION: New York, Vermont, and Maine.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **25**: *pl. 1, f. 5–8.*

43. **Melanoleuca chrysenteroides** (Peck) Murrill.

Agaricus (*Tricholoma*) *chrysenteroides* Peck, Ann. Rep. N. Y. State Mus. **24**: 60. 1872.

Pileus fleshy, convex or plane, not at all umbonate, firm, 2.5–5 cm. broad; surface dry, glabrous or slightly silky, pale-yellow or buff, becoming dingy with age, margin sometimes

reflexed; context pale-yellow, taste and odor farinaceous; lamellae rather close, emarginate, yellowish, becoming dingy or pallid with age, marked with transverse veinlets along the upper edge, the interspaces venose; spores ellipsoid, 7.5–10×5–6 μ; stipe equal, firm, solid, glabrous, fibrous-striate, yellowish within and without, 5–7.5 cm. long, 6–8 mm. thick.

TYPE LOCALITY: Greig, New York.
HABITAT: Ground in woods.
DISTRIBUTION: New York.

44. Melanoleuca thujina (Peck) Murrill.

Agaricus (Tricholoma) thujinus Peck, Bull. Buffalo Soc. Nat. Sci. **1**: 44. 1873.

Pileus convex or centrally depressed, 2.5–5 cm. broad; surface glabrous, hygrophanous, pale-alutaceous, margin generally irregular, wavy or lobed; lamellae crowded, thin, abruptly emarginate, alutaceous; spores minute, about 4 × 2 μ; stipe slightly thickened at the top, glabrous, hollow, concolorous, whitish-villose at the base, 2.5–4 cm. broad, 4–6 mm. thick.

TYPE LOCALITY: Memphis, New York.
HABITAT: Under white cedar trees.
DISTRIBUTION: Known only from the type locality.

45. Melanoleuca alabamensis Murrill, sp. nov.

Pileus irregularly convex, at length subexpanded, solitary, reaching 5–6 cm. broad; surface dry or slightly viscid, yellowish-gray or subolivaceous, dusky on the disk, where it is often ornamented with blackish fibrils, margin entire, incurved on drying; context firm, dirty-white, mild or slightly unpleasant, without distinct odor; lamellae deeply sinuate, subcrowded, broad, somewhat ventricose, dull-yellowish-white, the edges undulate or uneven; spores ellipsoid, smooth, hyaline, 6–7×4–5 μ; stipe subcylindric, fibrous or somewhat scaly, sordid-white, spongy or solid within, 5–8 cm. long, 1–1.5 cm. thick.

Type collected on the ground in pine woods near Auburn, Alabama, December 26, 1900, *Mrs. F. S. Earle.* Also collected in the same locality, December 15, 1900, and January 5, 1901, *Mrs. F. S. Earle.*
DISTRIBUTION: Alabama.

46. Melanoleuca longipes Murrill, sp. nov.

Pileus conic to convex and at length expanded, the umbo disappearing with age, gregarious, reaching 8–10 cm. broad; surface smooth, glabrous, polished, pallid or glaucous to pale-olive, becoming brownish or blackish when bruised, margin entire, even, concolorous; context white, mild, odor not characteristic; lamellae sinuate, distant, ventricose, fragile, white, becoming grayish or brownish-discolored with age or when bruised; spores ellipsoid, smooth, hyaline, 5–6×2–3 μ; stipe very long, subequal, usually curved or twisted, longitudinally striate, glabrous, white, hollow, reaching 10–15 cm. long, 1–2 cm. thick.

Type collected on the ground under balsam fir trees on the grounds of the Lake Placid Club, Adirondack Mountains, New York, October 3–14, 1912, *W. A. & Edna L. Murrill 1161.*
DISTRIBUTION: New York and Massachusetts.

47. Melanoleuca viriditincta (Peck) Murrill.

Agaricus (Tricholoma) virescens Peck, Ann. Rep. N. Y. State Mus. **25**: 74. 1873. Not *A. virescens* Schaeff. 1774.
Agaricus viriditinctus Peck, Ann. Rep. N. Y. State Mus. **33**: 36. 1883.
Tricholoma viriditinctum Sacc. Syll. Fung. **5**: 128. 1887.

Pileus convex or nearly plane, sometimes centrally depressed, 7.5–12.5 cm. broad; surface moist, glabrous, dingy-green, margin sometimes wavy or lobed; lamellae close, white, gradually narrowed toward the outer extremity, rounded or slightly emarginate behind, white; spores broadly ellipsoid, 5×3.7 μ; stipe subequal, stuffed or hollow, thick but fragile, whitish, sometimes tinged with green, 7.5–10 cm. long, 12–24 mm. thick.

TYPE LOCALITY: North Elba, New York.
HABITAT: On mossy ground in open woods.
DISTRIBUTION: Known only from the type locality.

48. Melanoleuca paeonia (Fries) Murrill.

Agaricus paeonius Fries, Epicr. Myc. 42. 1838.
Agaricus carneus Pers. Syn. Fung. 340. 1801. Not *A. carneus* Schaeff. 1774.
Tricholoma carneum Gill. Champ. Fr. 115. 1876.

Pileus subfleshy, convex to plane, 2–5 cm. broad; surface flesh-colored, silky to glabrous, margin floccose; lamellae rounded, free, ventricose, white; spores ellipsoid, $2.5 \times 1.7\ \mu$; stipe soft, fragile, subpulverulent at the apex, persistently red, hollow, 2–5 cm. long.

TYPE LOCALITY: Sweden.
HABITAT: Grassy or mossy places.
DISTRIBUTION: New York; also in Europe.
ILLUSTRATIONS: Bull. Herb. Fr. *pl. 533, f. 1;* Fries, Icon. *pl. 40, f. 2.*

49. Melanoleuca microspora (Ellis) Murrill.

Agaricus (Tricholoma) microsporus Ellis, Bull. Torrey Club **5**: 45. 1874.

Pileus fleshy, thin, 1–2 cm. broad; surface dull-reddish-purple, slightly rugose, with a glaucous bloom, subzonate on drying; lamellae deeply and narrowly sinuate, subconcolorous, pale-purple to reddish-yellow, scarcely crowded, 3 mm. broad; spores subglobose, 3–5 μ; stipe minutely pubescent, yellowish-pilose at the base, hollow, 2.5 cm. long, 2 mm. thick.

TYPE LOCALITY: Newfield, New Jersey.
HABITAT: In sphagnum or on rotten cedar stumps in a white cedar swamp.
DISTRIBUTION: New Jersey.
EXSICCATI: Ellis & Ev. N. Am. Fungi *2003.*

50. Melanoleuca ionides (Pers.) Murrill.

Agaricus ionides Pers. Syn. Fung. 338. 1801.
Tricholoma ionides Gill. Champ. Fr. 114. 1876.

Pileus fleshy, campanulate to plane, at length depressed, reaching 5 cm. broad; surface expallent, smooth, watery-red becoming violet, alutaceous when dry, margin subsinuate; lamellae arcuate-adnate, whitish to yellowish, 6 mm. broad; spores ellipsoid, smooth, hyaline, $6\text{–}7 \times 3\text{–}5\ \mu$; stipe solid, attenuate upward, glabrous, rose-colored, stuffed, 5–7 cm. long, 4–6 mm. thick.

TYPE LOCALITY: France.
HABITAT: Grassy ground.
DISTRIBUTION: New York and Greenland; also in Europe.
ILLUSTRATIONS: Bull. Herb. Fr. *pl. 533, f. 3;* Boudier, Ic. Myc. 1: *pl. 24*; Cooke, Brit. Fungi *pl. 95a (101).*

51. Melanoleuca maculatescens (Peck) Murrill.

Tricholoma maculatescens Peck, Ann. Rep. N. Y. State Mus. **44**: 150. 1891.

Pileus compact, convex to expanded, obtuse, even, 4–7.5 cm. broad; surface slightly viscid when moist, reddish-brown, becoming rivulose and brown-spotted on drying, margin inflexed, exceeding the lamellae; context whitish, spongy; lamellae slightly emarginate, rather narrow, cinereous; spores oblong or subfusiform, pointed at the ends, uninucleate, $7.5 \times 4\ \mu$; stipe spongy-fleshy, equal, sometimes abruptly narrowed at the base, solid, stout, fibrillose, pallid or whitish, 5–7.5 cm. long, 12–18 mm. thick.

TYPE LOCALITY: Ohio.
HABITAT: Among fallen leaves in deciduous woods.
DISTRIBUTION: Ohio.
ILLUSTRATION: Hard, Mushrooms *f. 59.*

52. Melanoleuca tricolor (Peck) Murrill.

Tricholoma tricolor Peck, Ann. Rep. N. Y. State Mus. **41**: 60. 1888.

Pileus broadly convex or nearly plane, sometimes slightly depressed in the center, firm, 5–10 cm. broad; surface dry, obscurely striate on the margin, pale-alutaceous inclining to russet; context whitish; lamellae thin, narrow, close, adnexed, pale-yellow, becoming brown or purplish-brown in drying; spores broadly ellipsoid or subglobose, 7.5 μ long; stipe stout, short, firm, tapering upward from the thickened or subbulbous base, white, 5–7.5 cm. long, 12–24 mm. thick.

TYPE LOCALITY: Selkirk, New York.
HABITAT: Grounds in woods.
DISTRIBUTION: New York.

53. **Melanoleuca Earleae** Murrill, sp. nov.

Pileus very large, thick, fleshy, gregarious, reaching 12 cm. broad; surface slightly viscid when moist, smooth, glabrous, pale-rosy-avellaneous becoming brownish when injured, margin incurved, silky-tomentose; lamellae deeply sinuate, broad, crowded, white tinged with rose, becoming fulvous with age after drying; spores broadly ellipsoid, smooth, hyaline, granular, 7–8 × 6–7 μ; stipe very thick and heavy, somewhat bulbous, concolorous, becoming glabrous, solid, about 7 cm. long, 3–4 cm. thick.

Type collected in pine woods under pine needles near Auburn, Alabama, November 2, 1899, *Mrs. F. S. Earle.*
DISTRIBUTION: Known only from the type locality.

54. **Melanoleuca rimosa** (Peck) Murrill.

Tricholoma rimosum Peck, Bull. N. Y. State Mus. **10**: 947. 1902.

Pileus fleshy, convex to nearly plane, 2.5–4 cm. broad; surface watery-brown and shining, paler when dry, hygrophanous, margin often splitting; flesh concolorous when moist, whitish when dry, taste farinaceous; lamellae rounded behind, adnexed, very close, thin, narrow, edges uneven, whitish or subcinereous; spores ellipsoid, 7.5–8.7 × 4–5 μ; stipe nearly equal, silky-fibrillose, whitish, hollow, 2.5–5 cm. long, 3–5 mm. thick.

TYPE LOCALITY: Bolton, New York.
HABITAT: In woods.
DISTRIBUTION: Known only from the type locality.

55. **Melanoleuca submaculata** (Peck) Murrill.

Tricholoma submaculatum Peck, Ann. Rep. N. Y. State Mus. **46**: 102. 1894.

Pileus convex to subplane, the center depressed, 2.5–5 cm. broad; surface brownish, dark-spotted, glabrous; context white; lamellae crowded, thin, white, orange when bruised; spores subglobose, 4–5 × 4 μ; stipe silky-fibrillose, white, the base often decumbent, solid, 2.5–3.5 cm. long, 6–10 mm. thick.

TYPE LOCALITY: Shokan, New York.
HABITAT: Margin of woods.
DISTRIBUTION: New York.

56. **Melanoleuca eduriformis** Murrill, sp. nov.

Pileus rather thin, becoming expanded or slightly depressed, gregarious to subcespitose, reaching 10 cm. broad; surface smooth, glabrous, polished, hygrophanous when wet, not viscid, isabelline to fulvous, scarcely darker at the center, margin concolorous, somewhat lobed; context white, with fragrant odor and very pleasant, mealy to nutty flavor; lamellae sinuate, rather narrow, crowded, white, unchanging; spores ellipsoid, smooth, hyaline, 5–6 × 2–3 μ; stipe larger above or below, rather irregular, pale-yellowish, white at the apex, smooth, glabrous, hollow, 8 cm. long, 1.5–2 cm. thick.

Type collected on the ground in leaf-mold by the Bronx River in the New York Botanical Garden, August 29, 1911, *W. A. Murrill.*
DISTRIBUTION: Known only from the type locality.

57. **Melanoleuca lugubris** (Peck) Murrill.

Tricholoma lugubre Peck, Ann. Rep. N. Y. State Mus. **49**: 16. 1896.

Pileus convex, often irregular or repand, usually cespitose, 4–8 cm. broad; surface moist, glabrous, smoky-brown or grayish-brown, margin involute; context white; lamellae almost free, close, narrow, whitish; spores globose, 6 μ; stipe short, glabrous, white, solid.

TYPE LOCALITY: Deans Mills, New York.
HABITAT: Under hemlocks.
DISTRIBUTION: New York.

58. **Melanoleuca niveipes** (Peck) Murrill.

Tricholoma niveipes Peck, Bull. Torrey Club **29**: 69. 1902.

Pileus hemispheric to subplane, 5–12 cm. broad; surface dark-brown or grayish-brown, dry, innate-fibrillose, almost virgate; context white; lamellae sinuate, close, rather narrow,

snow-white; spores oblong, 7–8×3 μ; stipe equal or subequal, snow-white, solid or stuffed, 5–7 cm. long, 6–12 mm. thick.

TYPE LOCALITY: South Yarmouth, Massachusetts.
HABITAT: Sandy soil under pines.
DISTRIBUTION: Massachusetts.

59. Melanoleuca gravis (Peck) Murrill.

Tricholoma grave Peck, Ann. Rep. N. Y. State Mus. **43**: 63. 1890.

Pileus at first hemispheric to convex, compact, 12.5–20 cm. broad; surface glabrous, grayish-tawny and somewhat spotted when moist, paler when dry, margin paler, irregular, involute, covered with a minute, close, grayish-white tomentum or silkiness; context grayish-white; lamellae subdistant, rounded behind or sinuate-adnexed, at first whitish, then pale-ochraceous or tawny; spores broadly ellipsoid, 7.5×5 μ; stipe stout, compact, solid, subsquamulose, grayish-white, penetrating the soil deeply, 10 cm. long, 2.5–4 cm. thick.

TYPE LOCALITY: Manor, New York.
HABITAT: Mixed woods of pine and oak.
DISTRIBUTION: Northeastern United States.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **43**: *pl. 1, f. 5–8.*

60. Melanoleuca fuliginea (Peck) Murrill.

Tricholoma fuligineum Peck, Ann. Rep. N. Y. State Mus. **41**: 60. 1888.

Pileus convex or nearly plane, obtuse, often irregular, 2.5–6.5 cm. broad; surface dry, minutely squamulose, sooty-brown; context grayish, odor and taste farinaceous; lamellae subdistant, uneven on the edges, cinereous, becoming blackish on drying; spores oblong-ellipsoid, 7.5×4 μ; stipe short, solid, equal, glabrous, cinereous, 2.5–4 cm. long, 6–10 mm. thick.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: Among mosses and open places.
DISTRIBUTION: New York.

61. Melanoleuca compressipes Murrill, sp. nov.

Pileus convex to expanded, gregarious, 4–8 cm. broad; surface smooth, hygrophanous, moist, not viscid, dark-umber-brown becoming lighter on drying, usually darker on the disk, margin thin, entire; context thin, grayish or watery-brown, mild, without distinct odor; lamellae obscurely sinuate to nearly adnate, subcrowded, rather narrow, unequal, sordid-white becoming cinereous and at length dark-brown, not changing color when cut or bruised; spores subglobose, smooth, hyaline, 6–7.5 μ; stipe equal or tapering upward, often compressed, subglabrous, dirty-white, hollow or stuffed, 3–5 cm. long, 5–10 mm. thick.

Type collected on the ground in mixed woods near a small stream, at Auburn, Alabama, December 19, 1900, *Mrs. F. S. Earle.* Also collected in pine woods and in mixed woods in the same vicinity, January 22, 1900, and January 1, 1901, *Mrs. F. S. Earle.*
DISTRIBUTION: Alabama.

62. Melanoleuca inocybiformis Murrill.

Agaricus (*Tricholoma*) *Hebeloma* Peck, Bull. Buffalo Soc. Nat. Sci. 1: 45. 1873. Not *A. Hebeloma* Secr. 1833.

Pileus thin, broadly conic or subcampanulate, obtuse, 10 mm. broad; surface hygrophanous, brown with a darker disk and striatulate on the margin when moist, grayish when dry; lamellae broad, rounded behind and deeply emarginate, adnexed, yellowish; spores 6×4 μ; stipe equal, hollow, glabrous, pallid, 2.5 cm. long, 2 mm. thick.

TYPE LOCALITY: Worcester, New York.
HABITAT: On the ground in woods.
DISTRIBUTION: New York.

63. Melanoleuca subargillacea Murrill, sp. nov.

Pileus fleshy, thick, irregular, convex to expanded, solitary or cespitose, 4–10 cm. broad; surface moist, shining, smooth, glabrous, not viscid, pale-argillaceous, margin even, white; context thin, white, brittle, odor none except when drying, taste mawkish and disagreeable; lamellae rather broad, becoming ventricose, crowded, sinuate, white, unchanging; spores ellip-

soid, smooth, hyaline, 5–7 × 2–3 μ; stipe short and thick, cylindric above, bulbous at the base, smooth, glabrous, dull-white, spongy within, brittle, 3–5 cm. long, 1–2 cm. thick.

Type collected in sandy soil in mixed woods near Auburn, Alabama, January 1, 1901, *Mrs. F. S. Earle.*
HABITAT: In sandy soil in oak woods or mixed woods.
DISTRIBUTION: Alabama.

64. Melanoleuca phaeopodia (Bull. & Vent.) Murrill.

Agaricus phaeopodius Bull. & Vent. Champ. Fr. 1: 622. 1809.
Collybia phaeopodia Quél. Ench. Fung. 28. 1886.

Pileus depressed, gregarious, 5–9 cm. broad; surface dry, glabrous, fumoso-avellaneous, margin often irregular; context white, brittle, having a sweet, nutty taste, but no odor; lamellae sinuate, narrow, crowded, uneven, brittle, white to pallid; spores ellipsoid, smooth, hyaline, 7–9 × 5–6.5 μ; stipe subconcolorous, dry, glabrous, fleshy, stuffed or hollow, larger at the base, 4 cm. long, 0.75–2 cm. thick.

TYPE LOCALITY: France.
HABITAT: On the ground among weeds or in woods.
DISTRIBUTION: Northeastern United States; also in Europe.
ILLUSTRATION: Bull. Herb. Fr. *pl. 532, f. 2.*

65. Melanoleuca Volkertii Murrill, sp. nov.

Pileus convex to plane, at length depressed, somewhat irregular, thin, fragile, gregarious, reaching 7 cm. broad; surface smooth, glabrous, dry, avellaneous at the center, fading out to nearly white at the margin, the cuticle sometimes splitting radially; margin thin, entire or lobed, at first incurved, at length expanded; lamellae sinuate, rather crowded, of medium breadth, fragile, whitish, becoming subfulvous on drying; spores ellipsoid, smooth, hyaline, 4–6 × 3–4 μ; stipe usually short and thick, equal, smooth, glabrous, pallid or pale-avellaneous, spongy-stuffed, 3–4 cm. long, 1–2.5 cm. thick.

Type collected on the ground in woods east of the New York Botanical Garden, New York City, October 8, 1911, *W. A. Murrill & E. C. Volkert.*
DISTRIBUTION: Known only from the type locality.

66. Melanoleuca piperata (Peck) Murrill.

Tricholoma piperatum Peck, Bull. Torrey Club 26: 63. 1899.

Pileus rather thin, firm, dry, convex, obtuse or subumbonate, 4–7 cm. broad; surface virgate with innate brownish fibrils, varying in color from grayish-brown to blackish-brown, sometimes with greenish or yellowish tints, often a little darker in the center; context white or whitish, taste acrid; lamellae broad, close, rounded behind, adnexed, whitish or yellowish; spores ellipsoid, 6–7 × 5 μ; stipe generally short, equal, solid, silky, slightly mealy or pruinose at the top, white or slightly tinged with yellow, 5–7 cm. long, 6–12 mm. thick.

TYPE LOCALITY: Massachusetts.
HABITAT: On the ground in woods.
DISTRIBUTION: Massachusetts, New York, and Pennsylvania.

67. Melanoleuca semivestita (Peck) Murrill.

Tricholoma semivestitum Peck, Bull. Torrey Club 22: 485. 1895.

Pileus thin, expanded, the center depressed or subumbilicate, 12–24 mm. broad; surface dry, blackish-brown, glabrous, margin deflexed or involute; lamellae emarginate, close, whitish tinged with blue, edges often dentate; spores broadly ellipsoid or subglobose, uninucleate, 4–5 × 4 μ; stipe short, slightly thickened at the base, brown, tomentose below, solid, 1.5–2.5 cm. long, 4–6 mm. thick.

TYPE LOCALITY: Rooks County, Kansas.
HABITAT: On old grass roots in a sandy prairie pasture.
DISTRIBUTION: Kansas.

68. Melanoleuca praecox Murrill, sp. nov.

Pileus becoming plane and at length depressed, solitary, 4 cm. broad; surface dry, avellaneous, shining, minutely imbricate, margin irregular or somewhat lobed; context whitish, mild, pleasant to the taste; lamellae sinuate, broad, nearly plane, rather crowded, several

times inserted, avellaneous with a murinous tint; spores broadly ellipsoid, smooth, hyaline, granular, 7–9×5–7 μ; stipe enlarged above, avellaneous, glabrous, densely longitudinally striate, smooth and white at the base, white within, stuffed, having a rather tough rind, about 4 cm. long, 3.5 mm. thick below and 7 mm. thick above.

Type collected in rich soil in thin deciduous woods near the New York Botanical Garden, New York City, June 4, 1912, *E. C. Volkert*.
DISTRIBUTION: Known only from the type locality.

69. **Melanoleuca subfuliginea** Murrill, sp. nov.

Pileus convex, umbonate, solitary, 3 cm. broad; surface smooth, glabrous, avellaneous, dark-avellaneous at the center, becoming chestnut-colored on the umbo after drying, margin incurved, blackening on drying; lamellae sinuate, plane, crowded, broad, regular, pale-avellaneous, becoming smoky-umbrinous on drying; spores ellipsoid, pointed at one end, smooth, hyaline, 6–7×3–4 μ; stipe tapering upward from a bulbous base, smooth, dry, glabrous, white with a grayish tint, 4 cm. long, 1 cm. thick.

Type collected in leaf-mold in deciduous woods at Stockbridge, Massachusetts, October 3–4, 1911, *W. Gilman Thompson & W. A. Murrill*.
DISTRIBUTION: Known only from the type locality.

70. **Melanoleuca Tottenii** Murrill, sp. nov.

Pileus firm, convex to nearly plane, regular or slightly lobed, very rigid on drying, reaching 6 cm. broad; surface very smooth, glabrous, pale-grayish-tan with brownish tints in the center and indistinct areas of pinkish-lilac; margin thin, projecting, sharply incurved on drying; context white with a faint rosy tint, very thin except at the center; lamellae deeply sinuate, sometimes separating from the stipe, rather distant, broad, ventricose, toughish to rigid, white, becoming tinged with umbrinous to smoke-colored with age or on drying; spores ellipsoid, smooth, hyaline, 4.5–6.5×3–3.5 μ; stipe rather short and thick, subequal, white with a faint lilac tint, smooth, glabrous, shining, solid or spongy, faintly tinged with rose within, about 3–5 cm. long, 1–1.5 cm. thick.

Type collected on the ground in woods in Battle's Park, north of the cemetery, at Chapel Hill, North Carolina, November 25, 1913, *W. C. Coker & H. R. Totten 1008*. Also collected in mixed woods in the same vicinity, October 28, 1913, *W. C. Coker & H. R. Totten 949*.
DISTRIBUTION: Chapel Hill, North Carolina.

71. **Melanoleuca resplendens** (Fries) Murrill.

Tricholoma resplendens Fries, Monog. Hymen. Suec. ed. 2. **1**: 55. 1857.

Pileus fleshy, convex to nearly plane, gregarious, 5–10 cm. broad; surface smooth, glabrous, viscid, white, becoming yellow and slightly silky on the disk, shining and often hyaline-spotted when dried, margin straight; context white, taste mild, odor pleasant; lamellae nearly free when young, then emarginate, somewhat crowded, rather thick, entire, white; spores 7.5×4 μ; stipe solid, glabrous, slightly floccose at the apex, equal or subbulbous, smooth, white, dry, 5–7.5 cm. long, 8–16 mm. thick.

TYPE LOCALITY: Sweden.
HABITAT: Ground in woods.
DISTRIBUTION: Massachusetts, New York, and North Carolina; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 29;* Gill. Champ. Fr. *pl. 695;* Cooke, Brit. Fungi *pl. 55* (*64*).

72. **Melanoleuca subresplendens** Murrill, sp. nov.

Pileus fleshy, convex, solitary, 8.5 cm. broad; surface smooth, glabrous, milk-white, slightly viscid when moist, not at all silky, margin distinctly lobed, concolorous; context white, with farinaceous taste and odor; lamellae plane in mass, sinuate, crowded, rather broad, uneven on the edges, pallid, becoming avellaneous or subfuliginous on drying; spores ellipsoid, smooth, hyaline, 6–7×4–5 μ; stipe slightly tapering downward, smooth, glabrous, whitish but not shining, solid with a fibrous rind, not at all bulbous, 7 cm. long, 1.3–2 cm. thick.

Type collected on the ground in woods at Cold Spring Harbor, Long Island, New York, October 27, 1912, *R. A. Harper*.
DISTRIBUTION: Known only from the type locality.

73. Melanoleuca angustifolia Murrill, sp. nov.

Pileus fleshy, rather thin, conic-convex to plane with a broad, conic umbo, subcespitose, reaching 9 cm. broad; surface slimy-viscid when wet, smooth, glabrous, brownish-yellow with a lilac tint at the center, fading out to a broad, white, marginal zone; cuticle separable, margin thin, white, entire, inflexed, especially on drying; context firm, white, rather thin, with pleasant odor and nutty flavor; lamellae plane in mass, very narrow and much crowded, sinuate, several times inserted, white, slightly yellowish when seen at some angles; spores ellipsoid, smooth, hyaline, granular, 6–7×3–4 μ; stipe equal or nearly so, smooth, dry, slightly pruinose, milk-white, reaching 9 cm. long and 1.5 cm. thick.

Type collected on the ground in woods on the bank of the Bronx River in the New York Botanica Garden, August 30, 1911, *W. A. Murrill.*

DISTRIBUTION: Known only from the type locality.

74. Melanoleuca intermedia (Peck) Murrill.

Tricholoma intermedium Peck, Ann. Rep. N. Y. State Mus. **41**: 60. 1888.

Pileus thin, campanulate, obtuse, 5–7.5 cm. broad; surface glabrous, slightly viscid when moist, greenish-yellow; context white; lamellae crowded, free or slightly adnexed, white; spores broadly ellipsoid, 5×4 μ; stipe equal, firm, glabrous, white, 2.5–5 cm. long, 6–10 mm. thick.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: Woods.
DISTRIBUTION: Known only from the type locality.

75. Melanoleuca terrifera (Peck) Murrill.

Tricholoma terriferum Peck, Ann. Rep. N. Y. State Mus. **41**: 60. 1888.

Pileus broadly convex or nearly plane, 7.5–10 cm. broad; surface glabrous, viscid, pale-alutaceous, generally soiled with adhering particles of earth carried up in its growth, margin irregular, often wavy; context white, with no decided odor; lamellae thin, crowded, slightly adnexed, white, not spotted or changeable; spores minute. subglobose, 3 μ long; stipe equal, short, solid, white, floccose-squamulose at the apex, 2.5–4 cm. long, 12–16 mm. thick.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: Thin woods.
DISTRIBUTION: Known only from the type locality.

76. Melanoleuca Russula (Scop.) Murrill.

Agaricus Russula Scop. Fl. Carn. ed. 2. **2**: 435. 1772.
Tricholoma Russula Gill. Champ. Fr. 91. 1876.
Agaricus (*Tricholoma*) *rubicundus* Peck, Bull. Buffalo Soc. Nat. Sci. **1**: 42. 1873.

Pileus fleshy, convex, becoming plane or centrally depressed, obtuse, solitary or subcespitose, 7.5–12.5 cm. broad; surface viscid when moist, smooth or dotted with granular squamules on the disk, pale-pink or rose-red suffused at times with yellowish stains, margin usually paler, involute and minutely downy in the young plant; context white, sometimes tinged with red, taste mild; lamellae subdistant, rounded behind or subdecurrent, white, often becoming red-spotted with age; spores ellipsoid, 6–7.5×4 μ; stipe solid, firm, dry, white, often reddish below, squamulose at the apex, 2.5–5 cm. long, 12–16 mm. thick.

TYPE LOCALITY: Carniola.
HABITAT: On the ground under oaks or in mixed woods.
DISTRIBUTION: Northeastern United States; also in Europe.
ILLUSTRATIONS: Bull. N. Y. State Mus. **10**: *pl. 77, f. 1–5;* Cooke, Brit. Fungi *pl. 1116;* Gill. Champ. Fr. *pl. 60* (*696*); Lucand, Champ. Fr. *pl. 128;* McIlv. Am. Fungi *pl. 18, f. 3;* Hard, Mushrooms *f. 51.*
EXSICCATI: Herpell, Präp. Hutpilze *61;* Shear, N. Y. Fungi *1402.*

77. Melanoleuca subtransmutans Murrill, sp. nov.

Pileus convex to expanded, gregarious, reaching 4–8 cm. broad; surface smooth, viscid, light-pinkish-brown when shaded, becoming dark-brown where fully exposed, margin at length slightly sulcate; context whitish, unchanging, mild; lamellae crowded, rather narrow, sinuate, white stained with reddish, becoming darker with age; spores ellipsoid, smooth, hyaline, 6–7×

3–4 μ; stipe equal, white stained with reddish, becoming tawny with age, whitish-tomentose above, solid or spongy, 3–4 cm. long, 8–10 mm. thick.

Type collected on the ground in pine woods near Auburn, Alabama, December 26, 1899, *F. S. Earle*. Also collected near Auburn, Alabama, December 15, 1897, *C. F. Baker 94*, and in pine woods near Auburn, Alabama, December 16 and 19, 1900, *Mrs. F. S. Earle*.
DISTRIBUTION: Alabama.

78. Melanoleuca viscosa (Peck) Murrill.

Tricholoma viscosum Peck, Bull. Torrey Club **31**: 178. 1904.

Pileus fleshy, convex, 2–5 cm. broad; surface smooth, glutinous, shining when dry, yellowish-tawny, darker or reddish-brown in the center, margin irregular or wavy, often turned upward when old; context white, odor slight but unpleasant; lamellae narrow, close, nearly free, white; spores minute, subglobose, 3–4 μ long; stipe firm, equal, fragile, solid, flexuous, glutinous, white above, brown below, 2.5–4 cm. long, 4–5 cm. thick.

TYPE LOCALITY: St. Louis, Missouri.
HABITAT: Low ground.
DISTRIBUTION: Known only from the type locality.

79. Melanoleuca transmutans (Peck) Murrill.

Agaricus (*Tricholoma*) *transmutans* Peck, Ann. Rep. N. Y. State Mus. **29**: 38. 1878.

Pileus convex, cespitose, 5–10 cm. broad; surface nearly glabrous, viscid when moist, brownish, reddish-brown, or tawny-red, usually paler on the margin; context white, taste and odor farinaceous; lamellae narrow, close, sometimes branched, whitish or pale-yellowish, becoming dingy or reddish-spotted when old; spores globose to subglobose, smooth, hyaline, granular, 4–5 μ; stipe equal or slightly tapering upward, glabrous or slightly silky-fibrillose, stuffed or hollow, whitish, often marked with reddish stains or becoming reddish-brown toward the base, white within, 7.5–10 cm. long, 6–12 mm. thick.

TYPE LOCALITY: Sandlake, New York.
HABITAT: Ground in coniferous woods.
DISTRIBUTION: Massachusetts, New York, and New Jersey.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **48**: *pl. 21, f. 1–5*.

80. Melanoleuca portentosa (Fries) Murrill.

Agaricus portentosus Fries, Syst. Myc. **1**: 39. 1821.
Tricholoma portentosum Quél. Champ. Jura Vosg. 327. 1873.

Pileus rather fleshy, convex to expanded, subumbonate, 6–12 cm. broad; surface gray with a purple tint to fuliginous, somewhat viscid in moist weather, shining, radiate-lineate, margin thin, concolorous; context white, with strong odor, taste mild; lamellae rounded behind, rather broad, subdistant, white or pallid, becoming gray or yellow; spores subglobose, smooth, hyaline, 4–6 μ long; stipe usually short, subequal, glabrous, striate at times, white, solid, 6–12 cm. long, 1–2 cm. thick.

TYPE LOCALITY: Sweden.
HABITAT: On the ground in coniferous woods.
DISTRIBUTION: Northern United States from Massachusetts to Oregon; also in Europe.
ILLUSTRATIONS: Barla, Champ. Nice *pl. 25, f. 1–9;* Fries, Ic. Hymen. *pl. 24;* Gill. Champ. Fr. *pl. 65* (*692*); Cooke, Brit. Fungi *pl. 54* (*61*); Hard, Mushrooms *f. 63*.
EXSICCATI: Herpell, Präp. Hutpilze *36;* Sydow, Myc. Mar. *2803*.

81. Melanoleuca aurantia (Schaeff.) Murrill.

Agaricus aurantius Schaeff. Fung. Bavar. **4**: 18. 1774.
Armillaria aurantia Quél. Champ. Jura Vosg. 211. 1872.
Agaricus (*Tricholoma*) *Peckii* Howe, Bull. Torrey Club **6**: 66. 1875.

Pileus convex or nearly plane, 5–7.5 cm. broad; surface viscid when moist, squamulose, tawny-red inclining to tawny-orange; context white, odor farinaceous, taste farinaceous to unpleasant; lamellae narrow, close, sometimes branched, white, discolored or spotted with age; spores minute, broadly ellipsoid or subglobose, 4–5 μ long; stipe equal or slightly thickened at the base, squamulose, white at the top or sometimes with reddish droplets in wet weather, elsewhere concolorous, 5–7.5 cm. long, 8–12 mm. thick.

TYPE LOCALITY: Bavaria.
HABITAT: In thin woods.
DISTRIBUTION: Northeastern United States; also in Europe.
ILLUSTRATIONS: Atk. Stud. Am. Fungi *f. 86;* Schaeff. Fung. Bavar. *pl. 37;* Fries, Ic. Hymen. *pl. 26;* Gill. Champ. Fr. *pl. 51* (*31*).

82. Melanoleuca equestris (L.) Murrill.

Agaricus equestris L. Sp. Pl. 1173. 1753.
Agaricus crassus Scop. Fl. Carn. ed. 2. 2: 442. 1772.
Agaricus aureus Schaeff. Fung. Bavar. 4: 19. 1774.
Tricholoma equestre Quél. Champ. Jura Vosg. 39. 1872.

Pileus fleshy, compact, convex becoming expanded, obtuse, 7.5–12.5 cm. broad, surface pale-yellowish, more or less reddish-tinged, the disk and central scales often darker, margin naked, often flexuous; context white or tinged with yellow, at first farinaceous, then unpleasant to the taste; lamellae rounded behind, close, nearly free, sulfur-yellow; spores 6–7.5 × 4–5 μ; stipe stout, solid, pale-yellow or white, white within, 2.5–6 cm. long, 1–2 cm. thick.

TYPE LOCALITY: Sweden.
HABITAT: Under or near conifers.
DISTRIBUTION: Canada to Alabama and west to California; also in Europe.
ILLUSTRATIONS: Barla, Champ. Nice *pl. 24, f. 1–12;* Bull. N. Y. State Mus. 157: *pl. 124, f. 6–9;* Cooke, Brit. Fungi *pl. 72* (*59*); Gill. Champ. Fr. *pl. 64* (*672*); Lucand, Champ. Fr. *pl. 1;* Mycologia 1: *pl. 1, f. 3.*

83. Melanoleuca rhinaria (Berk. & Curt.) Murrill.

Agaricus (*Tricholoma*) *rhinarius* Berk. & Curt. Ann. Mag. Nat. Hist. III. 4: 2. 1859.

Pileus convex, obtuse, densely gregarious, 13 cm. broad; surface yellowish-brown and slightly areolate in the center, yellowish-white on the margin, which is scaly and at first involute; lamellae more or less forked, emarginate, adnate, crowded, white to yellow; spores ellipsoid, smooth, hyaline, granular, 5–6 × 3–4 μ; stipe stout, furfuraceous, yellow, 8–10 cm. long, 2 mm. thick.

TYPE LOCALITY: New England.
HABITAT: Among leaves in woods.
DISTRIBUTION: New England.

84. Melanoleuca subterrea Murrill, sp. nov.

Pileus subconic or convex to expanded, irregular at times, gregarious, reaching 6–8 cm. broad; surface viscid, gray, with black fibrils arranged in lines, the disk somewhat darker, margin thin, concolorous, usually entire; context white, taste farinaceous; lamellae sinuate, ventricose, subcrowded, unequal, white with a yellowish tint; spores ellipsoid, smooth, hyaline, 5–6 × 2–3 μ; stipe rather short, subequal, smooth, glabrous, white or slightly yellowish, hollow, 4–6 cm. long, 1 cm. thick.

Type collected on the ground in pine woods near Auburn, Alabama, December 24, 1899, *Mrs. F. S. Earle.*
DISTRIBUTION: Alabama.

85. Melanoleuca centralis (Peck) Murrill.

Tricholoma portentosum centrale Peck, Bull. N. Y. State Mus. 5: 673. 1899.

Pileus convex, sometimes slightly umbonate, gregarious, reaching 3–8 cm. broad; surface viscid, virgate with innate blackish fibrils, pale-yellow or greenish-yellow, sooty-brown in the center; context white; lamellae moderately broad and close, emarginate, white or yellowish; spores broadly ellipsoid, smooth, hyaline, 4–6 μ; stipe equal, solid, white, 4–8 cm. long, 6–10 mm. thick.

TYPE LOCALITY: Sandlake, New York.
HABITAT: In woods.
DISTRIBUTION: Northeastern United States.
ILLUSTRATIONS: Bull. N. Y. State Mus. 5: *pl. 57, f. 1–5.*

86. Melanoleuca subsejuncta (Peck) Murrill.

Tricholoma subsejunctum Peck, Bull. N. Y. State Mus. 157: 53. 1912.

Pileus fleshy, conic or convex, gregarious, 2.5–6.5 cm. broad; surface slightly viscid when moist, virgate or reticulate with blackish-brown fibrils, blackish-brown, often pale-yellow or

greenish-yellow on the margin, which is frequently wavy and lobed; context white, taste farinaceous; lamellae thin, close, rounded behind, adnexed, white, sometimes tinged with yellow in front; spores minute, 5–6×4–5 μ; stipe stout, solid, nearly equal, white, sometimes tinged with yellow, 3–5 cm. long, 6–12 mm. thick.

TYPE LOCALITY: Mohawk Hill, Lewis County, New York.
HABITAT: Among mosses and fallen leaves under evergreen and deciduous trees on the margin of a swamp.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATIONS: Bull. N. Y. State Mus. 157: *pl. 124, f. 1–5.*

87. Melanoleuca sejuncta (Sow.) Murrill.

Agaricus sejunctus Sow. Engl. Fungi *pl. 126.* 1799.

Pileus fleshy, convex to expanded or depressed, usually umbonate, 2.5–7.5 cm. broad; surface slightly viscid, streaked with innate brown or blackish fibrils, varying from whitish or yellowish to olivaceous or smoky-brownish; context white, fragile, odor and taste somewhat mealy; lamellae broad, uneven, subdistant, fragile, rounded behind or emarginate, white with yellow reflections from a lemon-yellow layer between the lamellae; spores subglobose, smooth, hyaline, 5–6 μ; stipe very variable in length and shape, solid, often irregular, white to yellowish or olivaceous, 2.5–7.5 cm. long, 8–16 mm. thick.

TYPE LOCALITY: England.
HABITAT: On the ground in mixed woods.
DISTRIBUTION: Eastern United States; also in Europe.
ILLUSTRATIONS: Sow. Engl. Fungi *pl. 126;* Gill. Champ. Fr. *pl. 67* (*700*); Atk. Stud. Am. Fungi *f. 89.*

88. Melanoleuca tenuipes Murrill, Mycologia 5: 223. 1913.

Tricholoma tenuipes Murrill, Mycologia 5: 223. 1913.

Pileus small, thin, convex, not expanding, becoming very slightly depressed at the center, 2 cm. broad; surface pallid, with a stramineous or avellaneous tint, smooth, glabrous, margin entire, concolorous, incurved; lamellae sinuate-adnexed, distant, broad, several times inserted, white, more or less notched on the edge; spores ellipsoid, smooth, hyaline, 5–7×3.5–4.5 μ; stipe slender, equal, solid, concolorous, white at the apex, smooth, dry, glabrous, 4 cm. long, 2 mm. thick.

TYPE LOCALITY: Seattle, Washington.
HABITAT: On the ground in woods.
DISTRIBUTION: Known only from the type locality.

89. Melanoleuca platyphylla Murrill, Mycologia 5: 219. 1913.

Tricholoma platyphyllum Murrill, Mycologia 5: 223. 1913.

Pileus convex to slightly depressed, rather thick, solitary, 3.5 cm. broad; surface smooth, subglabrous, white with a cremeous tint, margin entire, concolorous; lamellae white, subdistant, ventricose, very broad; spores ellipsoid, smooth, hyaline, granular, 8.5×6 μ; stipe tapering upward from a swollen base, pure-white, smooth, glabrous, 8 cm. long, 5–9 mm. thick.

TYPE LOCALITY: Seattle, Washington.
HABITAT: In humus in woods.
DISTRIBUTION: Known only from the type locality.

90. Melanoleuca pinicola Murrill, Mycologia 5: 219. 1913.

Tricholoma pinicola Murrill, Mycologia 5: 223. 1913.

Pileus rather thin, convex, umbonate, becoming nearly plane, gregarious, reaching 5 cm. broad; surface smooth, glabrous, subshining, dry or slightly moist, milk-white, margin entire, concolorous, strongly inflexed on drying; lamellae sinuate, not crowded, rather broad, plane or slightly ventricose, white or slightly discolored; spores ellipsoid, smooth, hyaline, 5–6×3–4 μ; stipe slightly tapering upward, fleshy, solid or stuffed, milk-white, smooth, glabrous, whitish-mycelioid at the base, 5–7 cm. long, 4–9 mm. thick.

TYPE LOCALITY: Tacoma, Washington.
HABITAT: On much decayed coniferous wood.
DISTRIBUTION: Known only from the type locality.

91. **Melanoleuca farinacea** Murrill, Mycologia 5: 217. 1913.

Tricholoma farinaceum Murrill, Mycologia 5: 223. 1913.

Pileus rather thin but fleshy, convex to expanded, umbonate, gregarious to subcespitose, reaching 8 cm. broad; surface white, smooth, glabrous, margin entire, concolorous; context white, with strong farinaceous odor; lamellae sinuate, broad, several times inserted, not crowded, ventricose, white; spores ellipsoid, smooth, hyaline, 5–6×3–4 μ; stipe bulbous and whitish-mycelioid at the base, white, subglabrous, smooth, stuffed or hollow, fleshy, 5–6 cm. long, 5–10 mm. thick.

TYPE LOCALITY: Seattle, Washington.
HABITAT: In humus in woods.
DISTRIBUTION: Known only from the type locality.

92. **Melanoleuca sublurida** Murrill, Mycologia 5: 221. 1913.

Tricholoma subluridum Murrill, Mycologia 5: 223. 1913.

Pileus firm, conic to convex with prominent umbo, solitary, 7 cm. broad; surface smooth, minutely squamulose, whitish with a caesious tint, the center black, smooth, and shining, margin entire or slightly undulate, white, deflexed on drying; lamellae sinuate, plane, broad, whitish, distant; spores subglobose, smooth, hyaline, 3–4 μ; stipe subequal, dry, white with grayish, farinaceous scales, solid, about 6 cm. long, and 1.5 cm. thick.

TYPE LOCALITY: Glen Brook, Oregon.
HABITAT: In soil in woods.
DISTRIBUTION: Known only from the type locality.

93. **Melanoleuca Olesonii** Murrill, Mycologia 5: 218. 1913.

Tricholoma Olesonii Murrill, Mycologia 5: 223. 1913.

Pileus convex to plane, large, rather thick at the center, fleshy, gregarious, reaching about 14 cm. broad; surface pure-white, smooth, glabrous, moist, margin thin, entire or slightly lobed, concolorous, not inflexed on drying; lamellae broad, ventricose, crowded, sinuate, white becoming discolored on drying; spores ellipsoid, smooth, hyaline, 7–9×4–5 μ; stipe short, thick, equal or slightly bulbous, smooth, glabrous, white, solid, about 4–5 cm. long and 2–3 cm. thick.

TYPE LOCALITY: Mission Cañon, near Santa Barbara, California.
HABITAT: On the ground under an oak.
DISTRIBUTION: Known only from the type locality.

94. **Melanoleuca submulticeps** Murrill, Mycologia 5: 221. 1913.

Tricholoma submulticeps Murrill, Mycologia 5: 223. 1913.

Pileus large, fleshy, convex to plane, becoming depressed with age, densely cespitose, reaching 10–12 cm. broad; surface smooth, glabrous, hygrophanous, white, margin entire, concolorous; lamellae sinuate, rather crowded, plane, pure-white; spores globose, smooth, hyaline, granular, 7–8 μ; rarely reaching 10 μ; stipe white, hygrophanous, smooth, glabrous, hollow, ventricose or enlarged below, 6–10 cm. long, reaching 3 cm. thick.

TYPE LOCALITY: Seattle, Washington.
HABITAT: On the ground in woods.
DISTRIBUTION: Known only from the type locality.

95. **Melanoleuca rudericola** Murrill, Mycologia 5: 220. 1913.

Tricholoma rudericola Murrill, Mycologia 5: 223. 1913.

Pileus rather thin, broad, somewhat irregular, convex to plane, scattered, 10–14 cm. broad; surface smooth, glabrous, slightly moist, light-buff, margin thin, entire to lobed, concolorous, context white, without characteristic odor or taste; lamellae sinuate, narrow, subcrowded, many times inserted, white; spores ellipsoid, smooth, hyaline, 5–7×2.5–4.5 μ; stipe cylindric; equal, scarcely enlarged at the base, grayish-white with a tinge of purple, smooth, glabrous, solid, 5–10 cm. long, 1–1.5 cm. thick.

TYPE LOCALITY: Madera Creek, California.
HABITAT: In rich ground by a heap of rubbish.
DISTRIBUTION: Known only from the type locality.

96. **Melanoleuca bicolor** Murrill, Mycologia 5: 215. 1913.

Tricholoma bicolor Murrill, Mycologia 5: 223. 1913.

Pileus very firm, convex to nearly plane, somewhat gibbous, about 6–12 cm. broad; surface dry, smooth, glabrous, avellaneous with a rosy tint, margin concolorous or slightly paler, often splitting; lamellae broad, rather close, emarginate with a slight decurrent tooth, firm, drying readily, white; spores subglobose, smooth, hyaline, 6–7 μ; stipe equal or somewhat enlarged below, white, smooth, minutely tomentose to glabrous, solid, 5–6 cm. long, about 1 cm. thick.

TYPE LOCALITY: Glen Brook, Oregon.
HABITAT: In humus in woods, and on the ground under an oak.
DISTRIBUTION: Oregon and California.

97. **Melanoleuca roseibrunnea** Murrill, Mycologia 5: 220. 1913.

Tricholoma roseibrunneum Murrill, Mycologia 5: 223. 1913.

Pileus convex to somewhat depressed, gregarious, reaching 8–10 cm. broad; surface smooth, dry, glabrous, brownish-pink with browner circular spots, margin paler with a cremeous tint, somewhat irregular and often upturned with age; context white, odor farinaceous, taste farinaceous with a faint bitter flavor which gradually becomes stronger, eaten by slugs; lamellae sinuate with a decurrent tooth, close, several times inserted, white; spores subglobose to ovoid, smooth, hyaline, 5–7 $\times$ 4–5 μ; stipe cylindric, equal or at times enlarged at the base, smooth, finely tomentose to subglabrous, white or whitish, solid, 6–8 cm. long, 1–1.5 cm. thick, usually thicker at the base.

TYPCE LOCALITY: Seattle, Washington.
HABITAT: Among humus on the ground in woods.
DISTRIBUTION: Washington, Oregon, and California.

98. **Melanoleuca nuciolens** Murrill, Mycologia 5: 218. 1913.

Tricholoma nuciolens Murrill, Mycologia 5: 223. 1913.

Pileus convex to nearly plane, often becoming depressed and irregular with age, gregarious, subcespitose, reaching 6 cm. broad; surface glabrous, rather uneven, hygrophanous, pale-rosy-isabelline, margin concolorous, undulate to conspicuously lobed and upturned with age; context white, thin, having the odor of walnuts in dried specimens; lamellae sinuate varying to adnate, narrow, arcuate, rather distant, pale-rosy-isabelline, becoming slightly purplish-spotted when bruised or on drying; spores ellipsoid, smooth, hyaline, 6 $\times$ 3.5 μ; stipe equal or slightly tapering upward, sometimes distorted in old specimens, smooth, glabrous, pallid, hollow, almost cartilaginous, about 5–6 cm. long, 1–1.5 cm. thick.

TYPE LOCALITY: Seattle, Washington.
HABITAT: In sandy soil in woods.
DISTRIBUTION: Known only from the type locality.

99. **Melanoleuca subvelata** Murrill, Mycologia 5: 222. 1913.

Tricholoma subvelatum Murrill, Mycologia 5: 223. 1913.

Pileus convex-conic when young, not fully expanding, loosely clustered, 3–5 cm. broad; surface smooth, glabrous, moist but not viscid, latericious, leaving a stain on paper, margin entire, strongly inflexed, concolorous or somewhat paler; lamellae sinuate-adnate to adnexed, not crowded, broad, ventricose, pallid; spores ovoid, smooth, hyaline, uninucleate, 5–7 $\times$ 2.5–4.5 μ; stipe subequal to slightly ventricose, rosy, smooth and glabrous at the apex, fibrillose-shaggy near the center, fleshy, solid, 7 cm. long, about 1 cm. thick; veil scanty, fibrillose, rosy, evanescent, persisting as fibrils on the margin and stipe.

TYPE LOCALITY: Seattle, Washington.
HABITAT: Among humus under a log in woods.
DISTRIBUTION: Known only from the type locality.

100. **Melanoleuca collybiiformis** Murrill, Mycologia 5: 216. 1913.

Tricholoma collybiiforme Murrill, Mycologia 5: 223. 1913.

Pileus broad, thin, convex to plane, drying easily like species of *Collybia*, gibbous, reaching 10 cm. broad; surface dry, smooth, glabrous, fulvous at the center, pale-fulvous near the entire,

smooth margin; lamellae rather crowded, white, sinuate, the edges undulate or somewhat notched; spores globose or subglobose, smooth, hyaline, about 3.5 μ; stipe eccentric, bulbous, rather broad, fleshy, hollow, white, radicate, 6 cm. long, 1–2 cm. thick.

TYPE LOCALITY: Seattle, Washington.
HABITAT: In humus in woods.
DISTRIBUTION: Known only from the type locality.

101. **Melanoleuca Harperi** Murrill, Mycologia 5: 217. 1913.

Tricholoma Harperi Murrill, Mycologia 5: 223. 1913.

Pileus broad, rather thin, becoming plane or depressed, gregarious or growing in circles, reaching 10–15 cm. broad; surface umbrinous, hygrophanous, not viscid, smooth, glabrous, margin entire or slightly lobed, concolorous; lamellae sinuate, white, not spotted, crowded, rather broad, ventricose, usually separating from the stipe with age; spores broadly ellipsoid, smooth, hyaline, 7–8 $\times$ 4 μ; stipe very short and thick, bulbous, solid, smooth, glabrous, white, about 3–4 cm. long and 2–3.5 cm. thick.

TYPE LOCALITY: Berkeley, California.
HABITAT: In rich soil.
DISTRIBUTION: California.

102. **Melanoleuca striatella** Murrill, Mycologia 5: 221. 1913.

Tricholoma striatellum Murrill, Mycologia 5: 223. 1913.

Pileus convex and gibbous when young, becoming depressed with age, firm, fleshy, scattered, 5–7.5 cm. broad; surface smooth, subglabrous, pale-mouse-gray, very minutely striate except at the center, margin quite thick, entire, concolorous; context grayish-white with farinaceous taste, quite thick at the center but very thin toward the margin; lamellae sinuate to adnexed, broad, plane or ventricose, close, white; spores globose, smooth, hyaline, 5–7 μ; stipe cylindric or slightly compressed, equal, longitudinally striate, whitish, solid, 3–6 cm. long, 1–2 cm. thick.

TYPE LOCALITY: Stanford University, California.
HABITAT: On the ground under live oaks.
DISTRIBUTION: Known only from the type locality.

103. **Melanoleuca subcinereiformis** Murrill, sp. nov.

Pileus convex to nearly plane, with a small rounded umbo, solitary, reaching 5 cm. broad; surface smooth, finely pruinose, smoky-avellaneous, slightly darker on the umbo, margin entire, straight, white; context thin, white, without characteristic odor or taste; lamellae adnexed, nearly free, slightly ventricose, crowded, of medium breadth, white; spores ellipsoid, smooth, hyaline, uninucleate, 7–8.5 $\times$ 4–5 μ; stipe slender, equal, hollow, with rather tough rind, pruinose, white, with a faint dirty-yellowish tint, about 5 cm. long and 6 mm. thick.

Type collected on the ground among decaying leaves and twigs in mixed woods near Corvallis, Oregon, November 6–11, 1911, *W. A. Murrill 901*.
DISTRIBUTION: Known only from the type locality.

104. **Melanoleuca avellanea** Murrill, Mycologia 5: 215. 1913.

Tricholoma avellaneum Murrill, Mycologia 5: 223. 1913.

Pileus convex, becoming plane, thick, fleshy, solitary, reaching 8 cm. broad; surface dry, smooth, glabrous, avellaneous, margin entire, concolorous, inflexed on drying; lamellae slightly sinuate varying to adnate, close, narrow, arcuate, pure-white changing to yellowish on drying; spores ellipsoid, smooth, hyaline, about 6 $\times$ 3 μ; stipe much enlarged at the base, rather short, fleshy, solid, white, smooth, slightly scabrous above, about 7 cm. long and 2 cm. thick, reaching 4 cm. thick at the base.

TYPE LOCALITY: Seattle, Washington.
HABITAT: In sandy soil mixed with humus in woods and on decayed wood.
DISTRIBUTION: Known only from the type locality.

105. **Melanoleuca fumosella** Murrill, sp. nov.

Pileus convex to depressed and somewhat irregular, scattered, 5.5–8 cm. broad; surface smooth, dry, opaque, pale-smoky, darker with age, margin paler at times, often lobed; context

white, compact, with strongly farinaceous odor and taste; lamellae narrow to medium, sinuate, slightly decurrent at times with age, white, unchanging; spores ellipsoid, smooth, hyaline, 5–6.5 × 3–4 μ; stipe subequal, white, smooth, usually solid within, 4–7 cm. long, 1.5–2.3 cm. thick.

Type collected among oak leaves at Claremont, California, in January, *C. F. Baker 5078*.
DISTRIBUTION: Known only from the type locality.

106. **Melanoleuca portolensis** Murrill, Mycologia 5: 219. 1913.

Tricholoma portolense Murrill, Mycologia 5: 223. 1913.

Pileus rather thick, convex with a prominent umbo, becoming nearly plane, scattered, 6–11 cm. broad; surface smooth, moist, glabrous, brownish-gray, darker toward the center, margin entire, concolorous; context white, with a slightly nutty taste but without characteristic odor; lamellae rather narrow, slightly sinuate, plane, several times inserted, crowded, white; spores ellipsoid, smooth, hyaline, 5–7 × 2.5–3.5 μ; stipe tapering upward from an enlarged base, nearly white, smooth above, somewhat roughened below, glabrous, solid, 6–8 cm. long, 1.5–2 cm. thick; veil rudimentary, leaving a trace upon the stipe.

TYPE LOCALITY: Portola, California.
HABITAT: On the ground under redwoods.
DISTRIBUTION: Known only from the type locality.

107. **Melanoleuca oreades** Murrill, Mycologia 5: 218. 1913.

Tricholoma oreades Murrill, Mycologia 5: 223. 1913.

Pileus becoming broadly convex or plane to somewhat depressed, large, fleshy, growing in circles, subcespitose at times, reaching 15 cm. broad; surface dry, smooth, slightly silky-striate, pale-avellaneous; context with an agreeable, nutty flavor and an odor somewhat suggestive of skunk cabbage; lamellae slightly sinuate, crowded, narrow, white, discolored on drying; spores ellipsoid, smooth, hyaline, 6–7 × 4–5 μ; stipe cylindric, solid, fleshy, white or pale-avellaneous, 5–8 cm. long, 1–1.5 cm. thick.

TYPE LOCALITY: Tacoma, Washington.
HABITAT: In the edge of woods on the border of a lake.
DISTRIBUTION: Known only from the type locality.

108. **Melanoleuca secedifolia** Murrill, Mycologia 5: 221. 1913.

Tricholoma secedifolium Murrill, Mycologia 5: 223. 1913.

Pileus convex to plane or slightly depressed, scattered, 12–20 cm. or more broad; surface dry, silky-fibrillose, with more or less conspicuous, minute, avellaneous to murinous, rarely fuliginous, floccose-imbricate, often evanescent scales, paler toward the margin; context with farinaceous odor and taste; lamellae sinuate, seceding, triangular, ventricose, not crowded, white, becoming rosy-isabelline on drying; spores broadly ellipsoid, smooth, hyaline, 7–8.5 × 5–6 μ; stipe enlarged below, crooked, fleshy, solid, scabrous, white, reaching 13 cm. long and 2.5 cm. thick.

TYPE LOCALITY: Salem, Oregon.
HABITAT: On the ground among humus in woods.
DISTRIBUTION: Oregon.

109. **Melanoleuca Yatesii** Murrill, sp. nov.

Pileus regular, convex, solitary, 5–8 cm. broad; surface smooth, glabrous, viscid, sulfur-yellow, becoming brownish at the center on drying, margin concolorous, entire, incurved on drying; context rather thin, white to pale-yellow; lamellae sinuate-adnexed, rather broad, ventricose, not crowded, apparently pale-yellow when fresh, somewhat discolored on drying; spores ellipsoid, smooth, hyaline, 5 × 3 μ; stipe equal, shining, subglabrous, sulfur-yellow, becoming nearly white when dry, 6–10 cm. long, 8–12 mm. thick.

Type collected under Monterey cypress and eucalyptus trees on the campus of the University of California at Berkeley, California, January 24, 1913, *H. S. Yates 8*.
DISTRIBUTION: Known only from the type locality.

110. **Melanoleuca dryophila** Murrill, Mycologia 5: 217. 1913.

Tricholoma dryophilum Murrill, Mycologia 5: 223. 1913.

Pileus convex, gibbous, becoming almost expanded, scattered, 3–10 cm. broad; surface glabrous, viscid when fresh, subshining, nearly smooth, whitish, stained with rusty-brown,

margin paler, somewhat lobed or irregular; context white, with farinaceous taste and odor; lamellae deeply sinuate to adnexed, close, narrow, plane, white, scarcely changing on drying; spores globose, smooth, hyaline, 5–8 μ; stipe cylindric or slightly flattened, scarcely enlarged below, glabrous, nearly smooth, whitish or brownish, solid, 6–8 cm. long, 1–3 cm. thick.

TYPE LOCALITY: Stanford University, California.
HABITAT: In soil under live oaks.
DISTRIBUTION: Known only from the type locality.

111. **Melanoleuca arenicola** Murrill, Mycologia 5: 214. 1913.

Tricholoma arenicola Murrill, Mycologia 5: 223. 1913.

Pileus convex to subexpanded, umbonate, terraced, reaching 10–12 cm. broad; surface smooth, glabrous, ferruginous, apparently viscid when fresh, bringing up adhering particles of sand; context mild to the taste, but with a strong, unpleasant odor; lamellae sinuate, ventricose, crowded, pallid, becoming discolored with subferruginous blotches; spores ellipsoid, smooth, hyaline, abundant, about 5–6×3–4 μ; stipe long, slightly attenuate downward, fleshy, white, glabrous, except for a few fibrils where the margin of the pileus rested against it, reaching 10 cm. long and 2 cm. thick.

TYPE LOCALITY: Newport, Oregon.
HABITAT: In deep, pure sand in pine barrens.
DISTRIBUTION: Known only from the type locality.

112. **Melanoleuca subannulata** (Peck) Murrill.

Armillaria subannulata Peck, Bull. Torrey Club **36**: 330. 1909.
Melanoleuca californica Murrill, Mycologia **5**: 216. 1913.
Tricholoma californicum Murrill, Mycologia **5**: 223. 1913.

Pileus convex to subplane, rather thick at the center, gregarious, reaching 15 cm. broad; surface smooth, glabrous, evidently viscid when fresh, bringing up adhering particles of soil, reddish-brown at the center, much paler at the margin, which is thin, entire and inflexed on drying; context white, rather thick at the center, thinning out toward the margin, slightly bitter to the taste, odor musty; lamellae quite narrow, less than the thickness of the context, sinuate to adnexed, plane, crowded, white, scarcely changing color on drying; spores broadly ellipsoid, smooth, hyaline, 5–7×4–5 μ; stipe very long, subequal, smooth, glabrous, white, solid, 10–15 cm. long, reaching 3 cm. thick.

TYPE LOCALITY: Claremont, California.
HABITAT: Under oaks or in cultivated fields.
DISTRIBUTION: California and Nevada.

113. **Melanoleuca subpessundata** Murrill, Mycologia 5: 222. 1913.

Tricholoma subpessundatum Murrill, Mycologia 5: 223. 1913.

Pileus becoming plane or slightly depressed, usually with a conic or rounded umbo, gregarious, reaching 6.5 cm. broad; surface dry or slightly viscid, subglabrous, latericious, bay on the umbo, usually smooth, varying at times to radiate-rimose and imbricate-squamulose except on the umbo; context with a farinaceous odor and taste; lamellae sinuate, usually with a decurrent tooth, ventricose, broad, not crowded, pale-rosy-isabelline, the edges often notched; spores globose to subglobose, smooth, hyaline, uninucleate, 6–7 μ; stipe slender, equal or enlarged below, smooth, pale-rosy-isabelline, glabrous above, decorated below with scattered, latericious fibrils, fleshy, solid or hollow, 7–9 cm. long, 7–10 mm. thick.

TYPE LOCALITY: Glen Brook, Oregon.
HABITAT: In soil in woods.
DISTRIBUTION: Oregon and California.

114. **Melanoleuca avellaneifolia** Murrill, Mycologia 5: 215. 1913.

Tricholoma avellaneifolium Murrill, Mycologia 5: 223. 1913.

Pileus fleshy, rather thick, convex to expanded, gibbous, subcespitose, reaching 9 cm. broad; surface polished, smooth, somewhat viscid, dull-blackish-fuliginous, margin entire, concolorous, inflexed on drying; lamellae sinuate, ventricose, several times inserted, not crowded, pale-

avellaneous; spores subglobose, smooth, hyaline, granular, about 5.5–6.5 μ; stipe equal, fleshy, solid, smooth, glabrous, pure-white, about 8 cm. long, 1.5 cm. thick.

TYPE LOCALITY: Mill City, Oregon.
HABITAT: In soil in woods.
DISTRIBUTION: Known only from the type locality.

115. Melanoleuca subisabellina Murrill, Mycologia 3: 194. 1911.

Tricholoma subisabellinum Murrill, Mycologia 4: 332. 1912.

Pileus irregular, convex to infundibuliform, gregarious, 4–8 cm. broad; surface glabrous, dull-colored, dingy-isabelline, margin undulate or slightly lobed, inflexed; lamellae sinuate, straight, narrow, rather close, white to dirty-brownish; spores ellipsoid, hyaline, echinulate, 5×3.5 μ; stipe curved, tapering toward the base, glabrous, fleshy, white, 3 cm. long, 3–10 mm. thick.

TYPE LOCALITY: Castleton Gardens, Jamaica.
HABITAT: On a waste heap of earth and vegetable refuse.
DISTRIBUTION: Known only from the type locality.

116. Melanoleuca dichropus (Fries) Murrill, Mycologia 3: 193. 1911.

Agaricus (*Tricholoma*) *dichropus* Fries, Nova Acta Soc. Sci. Upsal. III. 1: 22. 1851.

Pileus fleshy, firm but not thick, expanded, obtuse, often depressed, 5 cm. or more broad; surface moist at first then dry, smooth, glabrous, purplish-lilac, paler toward the margin; lamellae adnexed, subdistant, white, unchanging; spores hyaline; stipe attenuate above, concolorous, apex abruptly white, solid, 5 cm. or more long, 4 mm. thick at the apex, 6 mm. thick at the base; veil obsolete.

TYPE LOCALITY: Island of St. Thomas.
HABITAT: On the ground.
DISTRIBUTION: Known only from the type locality.

117. Melanoleuca jalapensis Murrill, Mycologia 3: 194. 1911.

Tricholoma jalapense Murrill, Mycologia 4: 332. 1912.

Pileus convex, much split at the margin, solitary, 4 cm. broad; surface dry, glabrous, shining, more or less radiate-rimose, the castaneous cuticle remaining entire at the center but almost disappearing near the margin, where it persists in faint streaks or patches; context thin, white, sweet; lamellae adnate with a slight sinus, narrow, rather close, cremeous, pruinose under a lens; spores globose, smooth, hyaline, 5 μ; stipe cylindric, equal, glabrous, white, with a tough rind, 4 cm. long, 7 mm. thick, abruptly bulbous at the base as in some species of *Cortinarius*.

TYPE LOCALITY: Jalapa, Mexico.
HABITAT: Rich soil in a moist virgin forest.
DISTRIBUTION: Known only from the type locality.

118. Melanoleuca jamaicensis Murrill, Mycologia 3: 194. 1911.

Tricholoma jamaicense Murrill, Mycologia 4: 332. 1912.

Pileus umbilicate, solitary, 2–3 cm. broad; surface glabrous, latericious-fulvous; lamellae sinuate with a decurrent tooth, latericious, broad, rather distant; spores globose, smooth, hyaline, 3–4 μ; stipe slender, cylindric, equal, glabrous, concolorous with the surface of the pileus, 4 cm. long, 2.5 mm. thick, the apex much enlarged, 5 mm. thick, stramineous and tomentose.

TYPE LOCALITY: Morce's Gap, Jamaica.
HABITAT: On the ground under tree-ferns.
DISTRIBUTION: Known only from the type locality.

119. Melanoleuca holoporphyra (Berk. & Curt.) Murrill, Mycologia 3: 193. 1911.

Agaricus (*Clitocybe*) *holoporphyrus* Berk. & Curt. Jour. Linn. Soc. 10: 284. 1868.

Pileus convex, 6 cm. broad; surface latericious, dry, finely tomentose, slightly striate on the margin; lamellae sinuate with a decurrent tooth, broad, distant, testaceous; spores ovoid,

smooth, hyaline, 9–12×4–7 μ; stipe equal, pale-purple, glabrous, hollow, with a fibrous-looking rind, 6 cm. long, 1 cm. thick.

TYPE LOCALITY: Cuba.
HABITAT: Rotten logs in woods and rich soil in coffee plantations.
DISTRIBUTION: Mexico and Cuba.

DOUBTFUL SPECIES

Agaricus (*Tricholoma*) *consobrinus* Berk. & Mont.; Mont. Syll. Crypt. 99. 1856. Described from specimens collected by Sullivant on dead wood near Columbus, Ohio. Two sporophores are preserved in the Montagne Herbarium in Paris, but they give very little idea of what the species must have been when fresh. The spores of these type specimens are ellipsoid, smooth, hyaline, granular, 7×5.5 μ. The species is described as umbonate, 10–13 cm. broad, with pale-lilac surface, broad and crowded lamellae, and a subbulbous stipe 7–9 cm. long and reaching 2 cm. thick. This would call for a plant resembling *Collybia platyphylla*, but the surface of that species could hardly be described as pale-lilac.

Agaricus (*Tricholoma*) *mucifer* Berk. & Mont.; Mont. Syll. Crypt. 99. 1856. Described from Ohio and evidently near *Melanoleuca transmutans*. See note in Mycologia for March, 1914.

Agaricus (*Tricholoma*) *reticulatus* Johnson, Bull. Minn. Acad. 1: 354. 1880. Described from plants collected in woods on Nicollet Island, Michigan. Pileus reddish, viscid, reticulate, 4 cm. broad; lamellae white; stipe bulbous, radicate, white. The types no longer exist.

44. CORTINELLUS Roze, Bull. Soc. Bot. Fr. 23: 50. 1876.

Fleshy, putrescent, solitary or gregarious, rarely cespitose, wood-loving or terrestrial; surface dry, conspicuously decorated with fibrils or scales, usually bright-colored; context usually thick; lamellae sinuate or adnexed; spores hyaline, usually ellipsoid and smooth; stipe central or slightly eccentric, fleshy; veil remaining as a vestiture on the pileus.

Type species, *Agaricus vaccinus* Schaeff.

Plants growing on decayed wood.
  Pileus yellow or yellowish, the scales brownish.
    Lamellae and context white. — 1. *C. decorosus.*
    Lamellae and context yellow. — 2. *C. decorus.*
  Pileus some shade of red or purple, sometimes yellowish with age; stipe concolorous.
    Pileus dark-red or purple; lamellae white to yellow. — 3. *C. rutilans.*
    Pileus bright-reddish-cinnamon; lamellae light-chestnut-colored. — 4. *C. cinnamomeus.*
  Pileus white or pale-brown.
    Pileus white, with dark-umbrinous, floccose fibrils. — 5. *C. Glatfelteri.*
    Pileus pale-brown, with brown, fasciculate hairs. — 6. *C. hirtellus.*
Plants growing in the soil.
  Pileus white, 10 cm. or more broad. — 7. *C. grandis.*
  Pileus gray or grayish-brown, reaching 7.5 cm. broad. — 8. *C. multiformis.*
  Pileus some shade of red or reddish-brown.
    Spores globose or subglobose, 3.5–6 μ.
      Pileus and lamellae pale with a reddish tint. — 9. *C. subrufescens.*
      Pileus reddish-brown; lamellae sordid-white to bay. — 10. *C. mutifolius.*
    Spores ellipsoid, 5–7×4–6 μ; lamellae becoming reddish-spotted. — 11. *C. vaccinus.*

1. Cortinellus decorosus (Peck) Murrill.

Agaricus (*Tricholoma*) *decorosus* Peck, Bull. Buffalo Soc. Nat. Sci. 1: 42. 1873.

Pileus firm, at first hemispheric, then convex or nearly plane, often cespitose, 2.5–5 cm. broad; surface adorned with numerous brownish, subsquarrose, tomentose scales, dull-ochraceous or tawny; context white; lamellae close, rounded and slightly emarginate behind, the edges subcrenulate; spores broadly ellipsoid, 5×3.7 μ; stipe solid, equal or slightly tapering upward, white and smooth at the top, elsewhere tomentose-squamulose and concolorous, 5–10 cm. long, 4–8 mm. thick.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: On rotten logs in woods.
DISTRIBUTION: New York.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. 25: *pl. 1, f. 1–4.*

2. Cortinellus decorus (Fries) P. Karst. Hattsv. 1: 25. 1879.

Agaricus flavovirens Fries, Obs. Myc. 1: 25. 1815. Not *A. flavovirens* Pers. 1801.
Agaricus decorus Fries, Syst. Myc. 1: 108. 1821.
Agaricus (*Tricholoma*) *multipunctus* Peck, Bull. N. Y. State Mus. 5: 73. 1899.
Pleurotus decorus Sacc. Syll. Fung. 5: 342. 1887.

Pileus thin, rather tough, convex becoming plane or slightly depressed, subexpanded, 7 cm. or more broad; surface moist, melleous, sometimes tinged with flavous, fuliginous at the center, dotted with minute, brownish or blackish, hairy squamules, margin incurved; context yellow, watery, mild, insipid; lamellae adnate to slightly sinuate, crowded, arcuate, cremeous-flavous; spores subglobose, smooth, hyaline, 5–6 $\times$ 4–5 μ; stipe equal, often curved, stuffed or hollow, melleous, fibrillose or squamulose, especially above, rarely glabrous, sometimes eccentric, 2.5–6 cm. long, 4–6 mm. thick.

TYPE LOCALITY: Smoland, Sweden.
HABITAT: Decaying trunks of coniferous trees.
DISTRIBUTION: Temperate North America; also in Europe.
ILLUSTRATION: Fries, Ic. Hymen. *pl. 60, f. 1.*

3. Cortinellus rutilans (Schaeff.) P. Karst. Hattsv. 1: 24. 1879.

? *Agaricus variegatus* Scop. Fl. Carn. ed. 2. 2: 434. 1772.
Agaricus rutilans Schaeff. Fung. Bavar. 4: 5. 1774.
Tricholoma rutilans Quél. Champ. Jura Vosg. 40. 1872.

Pileus fleshy, campanulate, becoming plane, 5–10 cm. broad; surface dry, at first covered with a dark-red or purplish tomentum, then somewhat squamulose, sometimes yellowish with age, margin thin, at first involute; context yellow, taste mild, odor none; lamellae crowded, rounded, white to yellow, thickened and more or less villose and serrulate on the edges; spores globose or subglobose, 6–7.5 $\times$ 6–6.5 μ; stipe somewhat hollow, nearly equal or slightly thickened or bulbous at the base, soft, pale-yellow variegated with red or purplish, floccose squamules, 5–10 cm. long, 10–16 mm. thick.

TYPE LOCALITY: Bavaria.
HABITAT: On or about old stumps in coniferous or mixed woods.
DISTRIBUTION: Maine to North Carolina and west to Colorado and Washington; also in Europe.
ILLUSTRATIONS: Barla, Champ. Nice *pl. 29, f. 4–8;* Cooke, Brit. Fungi *pl. 89* (*74*); Gill. Champ. Fr. *pl. 69* (*697*); Lanzi, Funghi Mang. *pl. 106, f. 1;* Lucand, Champ. Fr. *pl. 54;* Sow. Engl. Fungi *pl. 31.*
EXSICCATI: Herpell, Präp. Hutpilze *96;* Sydow, Myc. Mar. *3307*.

4. Cortinellus cinnamomeus Murrill, sp. nov.

Pileus firm, thin, convex to expanded, obtuse, cespitose, 3–7 cm. broad; surface bright-reddish-cinnamon, dry, imbricate-squamose, scales linear-appressed, acute, margin fimbriate; lamellae broadly adnexed, crowded, narrow, thin, light-chestnut-colored; spores subglobose, colorless, about 7 $\times$ 6 μ; stipe cylindric, hirsute-squamulose, concolorous or slightly paler, hollow, 3–6 cm. long, 4–8 mm. thick.

Type collected on rotten pine wood at Biloxi, Mississippi, September, 1904, *Mrs. F. S. Earle 65.*
DISTRIBUTION: Known only from the type locality.

5. Cortinellus Glatfelteri Murrill, sp. nov.

Pileus thin, broadly convex, never fully expanded, wood-loving, reaching 6 cm. broad; surface dry, smooth, white, clothed with dark-umbrinous, stellate, floccose fibrils, which are denser in certain spots and produce an illusive effect as though the surface were undulate; margin very thin, slightly paler; context thin, white, odor strong, unpleasant, taste sweet; lamellae adnate or slightly sinuate, pallid, not becoming darker with age, crowded, rather narrow; spores pure-white in mass, ellipsoid, densely and minutely nodulose, 6–7 $\times$ 3–4 μ; stipe somewhat eccentric at times, subequal, longitudinally striate, subconcolorous, minutely hispid to subglabrous, solid, firm, rather tough, about 4 cm. long, 5 mm. thick.

Type collected on a rotting trunk in St. Louis County, Missouri, July 10, 1902, *N. M. Glatfelter 872.*
DISTRIBUTION: Known only from the type locality.

6. **Cortinellus hirtellus** (Peck) Murrill.

Tricholoma hirtellum Peck, Bull. N. Y. State Mus. 116: 38. 1907.

Pileus fleshy, thin, convex, subumbonate, solitary or cespitose, 2.5–4 cm. broad; surface pale-brown, dry, hairy, the hairs sometimes minutely fasciculate; context white, taste mild; lamellae thin, narrow, close, slightly sinuate-adnexed, minutely floccose on the edges, yellowish-white or pallid; spores subglobose, 6–7.5 × 5–6 μ; stipe slender, equal, stuffed or hollow, with a very small cavity, fibrillose or subsquamulose, concolorous or a little paler, 2.5–4 cm. broad, 4–6 mm. thick.

TYPE LOCALITY: Wading River, Suffolk County, New York.
HABITAT: On or about pine stumps.
DISTRIBUTION: New York, New Jersey, and Alabama.
ILLUSTRATIONS: Bull. N. Y. State Mus. 116: *pl. 105, f. 1–5.*

7. **Cortinellus grandis** (Peck) Murrill.

Tricholoma grande Peck, Ann. Rep. N. Y. State Mus. **44**: 128. 1892.

Pileus thick, firm, hemispheric becoming convex, often irregular, frequently cespitose, 10–12.5 cm. broad; surface dry, brownish-squamulose, somewhat silky-fibrillose toward the margin, white, margin at first involute, pure-white; context grayish-white, taste farinaceous; lamellae close, rounded behind, adnexed, somewhat lacerate, white; spores ellipsoid, 8.5–11 × 6 μ; stipe stout, solid, fibrillose, at first tapering upward, then equal or but slightly thickened at the base, pure-white, 5–10 cm. long, 2.5–4 cm. thick.

TYPE LOCALITY: Cattaraugus County, New York.
HABITAT: Among fallen leaves in woods.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **44**: *pl. 3, f. 5–8.*

8. **Cortinellus multiformis** (Schaeff.) Murrill.

Agaricus multiformis Schaeff. Fung. Bavar. **4**: 9. 1774.
Agaricus terreus Schaeff. Fung. Bavar. **4**: 28. 1774.
Agaricus argyraceus Bull. Herb. Fr. *pl. 423, f. 1.* 1788.
Tricholoma terreum Quél. Champ. Jura Vosg. 42. 1872.
Cortinellus terreus P. Karst. Hattsv. **1**: 25. 1879.

Pileus fleshy, thin, soft, convex, campanulate, or nearly plane, obtuse or umbonate, at times gregarious to cespitose, 2.5–7.5 cm. broad; surface innately fibrillose or floccose-squamose, cinereous-fuscous, grayish-brown, or mouse-colored; context white or whitish, sometimes with a farinaceous odor; lamellae adnexed, subdistant, more or less eroded on the edges, white becoming cinereous; spores broadly ellipsoid, 6–7 × 4–5 μ; stipe equal, varying from solid to stuffed or hollow, fibrillose, white or whitish, 2.5–5 cm. long, 4–8 mm. thick.

TYPE LOCALITY: Bavaria.
HABITAT: On the ground in woods or groves.
DISTRIBUTION: Temperate regions of the world.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **49**: *pl. 47, f. 1–10;* Barla, Champ. Nice *pl. 36, f. 1–3;* Cooke, Brit. Fungi *pl. 50* (*83*); Gill. Champ. Fr. *pl. 73* (*704*); Hard, Mushrooms *f. 55;* Sow. Engl. Fungi *pl. 76.*
EXSICCATI: Herpell, Präp. Hutpilze *6;* Clements, Crypt. Form. Colo. *174;* Ellis & Ev. Fungi Columb. *1983;* Ellis & Ev. N. Am. Fungi *2726;* Krieger, Fungi Sax. *486.*

9. **Cortinellus subrufescens** (Ellis & Ev.) Murrill.

Tricholoma subrufescens Ellis & Ev. Proc. Acad. Nat. Sci. Phila. **1893**: 440. 1893.

Pileus fleshy, convex-plane, 4–5 cm. broad; surface pale with a reddish tint, the center darker, innate-fibrillose, squamose, not viscid, margin thin; context white; lamellae heterophyllous, rounded behind, subcrowded, flesh-colored with a reddish tint, 2–3 mm. broad; spores hyaline, subglobose, 3.5 μ; stipe attenuate above, subsquamulose, subconcolorous, fibrous, becoming hollow, 8 cm. long, 1 cm. thick.

TYPE LOCALITY: New Jersey.
HABITAT: Mixed woods among fallen leaves.
DISTRIBUTION: New Jersey.

10. Cortinellus mutifolius Murrill, sp. nov.

Pileus convex to expanded, subumbonate, solitary or gregarious, 4–8 cm. broad; surface dry, reddish-brown, decorated with rather conspicuous innate scales, margin smooth, entire, concolorous; context watery-brown, unchanging, taste mild, odor not characteristic; lamellae slightly sinuate, subcrowded, of medium breadth, somewhat undulate on the edges, sordid-white, bay in dried specimens; spores globose, smooth, hyaline, granular, 4–6 μ; stipe long and rather thick, subequal, usually tapering downward, whitish above, dull-reddish-brown below, smooth, fibrillose, spongy within, 6–10 cm. long, 1–1.5 cm. thick.

Type collected on the ground in moist woods near Auburn, Alabama, January 5, 1901, *Mr. & Mrs. F. S. Earle.*
DISTRIBUTION: Known only from the type locality.

11. Cortinellus vaccinus (Schaeff.) Roze, Bull. Soc. Bot. Fr. 23: 50. 1876.

Agaricus vaccinus Schaeff. Fung. Bavar. **4**: 13. 1774.
Tricholoma vaccinum Quél. Champ. Jura Vosg. 42. 1872.

Pileus fleshy, convex or campanulate, becoming nearly plane, usually umbonate, gregarious, 2.5–7.5 cm. broad; surface dry, floccose-squamose, reddish-brown, innate-fibrillose and rimose at times, cuticle bay when young, at length light-bay at the center and avellaneous-isabelline on the marginal zone, margin involute, tomentose; context white, taste farinaceous; lamellae sinuate-adnexed, subdistant, whitish to reddish or reddish-spotted; spores subglobose to broadly ellipsoid, smooth, hyaline, 5–7 × 4–6 μ; stipe equal, hollow, covered with a fibrillose bark, naked at the apex, whitish-rufescent to bay, 5–9 cm. long, 8–12 mm. thick.

TYPE LOCALITY: Bavaria.
HABITAT: On the ground under conifers.
DISTRIBUTION: Canada to North Carolina and west to Washington and Oregon.
ILLUSTRATIONS: Barla, Champ. Nice *pl. 34, f. 8–13;* Batsch, Elench. Fung. *pl. 116;* Dufour, Atl. Champ. *pl. 13, f. 21;* Gill. Champ. Fr. *pl. 70 (707).*
EXSICCATI: Thüm. Myc. Univ. *602;* Sydow, Myc. Mar. *3406;* D. Sacc. Myc. Ital. *202;* Herpell, Präp. Hutpilze *5.*

45. PLEUROTUS (Fries) Quél. Champ. Jura Vosg. 77. 1872.

Agaricus § Pleurotus Fries, Syst. Myc. **1**: 178. 1821.

Pileus putrescent, solitary or cespitose, fleshy, somewhat irregular; lamellae decurrent; spores hyaline; stipe more or less eccentric, firm, fleshy or woody; veil well developed, forming an annulus.

Type species, *Pleurotus corticatus* (Fries) Quél.

1. Pleurotus dimidiatus (Schaeff.) Murrill.

Agaricus dimidiatus Schaeff. Fung. Bavar. **4**: 57. 1774.
Agaricus dryinus Pers. Comment. Schaeff. 96. 1800.
Agaricus corticatus Fries, Obs. Myc. **1**: 92. 1815.
Pleurotus corticatus Quél. Champ. Jura Vosg. 77. 1872.
Pleurotus dryinus Quél. Champ. Jura Vosg. 77. 1872.
Agaricus (Pleurotus) subareolatus Peck, Ann. Rep. N. Y. State Mus. **30**: 39. 1878.
Armillaria dryina P. Karst. Hattsv. **1**: 23. 1879.

Pileus compact, very firm when dry, dimidiate to subcircular, convex to expanded, becoming depressed, solitary to somewhat cespitose, 5–20 cm. broad; surface dry, white to avellaneous, becoming yellow with age, at times tinged with lilac on the disk, densely fibrillose or floccose to squamose; lamellae white, becoming yellow with age, subdistant, decurrent, usually anastomosing behind; spores oblong, smooth, pure-white in mass, unchanging, 9–14 × 4–6 μ; stipe curved, eccentric, firm, solid, radicate, striate, fibrillose, 2–12 cm. long, 1–3 cm. thick; veil membranous, fugacious, appendiculate, rarely leaving an annulus.

TYPE LOCALITY: Bavaria.
HABITAT: Decayed spots in deciduous trees.
DISTRIBUTION: Canada to North Carolina and west to Washington; also in Europe.
ILLUSTRATIONS: Schaeff. Fung. Bavar. *pl. 233;* Atk. Stud. Am. Fungi *pl. 33, f. 107;* Boudier, Ic. Myc. **1**: *pl. 76;* Cooke, Brit. Fungi *pl. 290;* Pat. Tab. Fung. *pl. 516;* Bres. Funghi Trident. *pl. 80.*

46. ARMILLARIA (Fries) Quél. Champ. Jura Vosg. 36. 1872.

Agaricus § *Armillaria* Fries, Syst. Myc. **1**: 26. 1821.
Armillariella P. Karst. Acta Soc. Faun. Fl. Fenn. **2**: 4. 1881.
Gyrophila Quél. Ench. Fung. 9. 1886.
Mucidula Pat. Hymén. Eur. 95. 1887.
Catathelasma Lovejoy, Bot. Gaz. **50**: 383. 1910.

Pileus fleshy, putrescent, solitary to cespitose; lamellae adnate, varying to adnexed or decurrent; spores hyaline; veil usually forming an annulus; stipe central, fleshy, firm, at times fibrous.

Type species, *Armillaria ramentacea* (Bull.) Quél.

Terrestrial species; usually solitary.
  Pileus white or tinged with yellow, the disk often differently colored.
    Spores 4–8 μ long.
      Stipe bulbous; pileus 5–10 cm. broad. — 1. *A. appendiculata.*
      Stipe not bulbous; pileus usually 10–15 cm. broad.
        Stipe viscid; spores ellipsoid, 7.5 × 5 μ. — 2. *A. viscidipes.*
        Stipe dry; spores globose, 4–6 μ.
          Pileus white or yellowish; growing in humus. — 3. *A. magnivelaris.*
          Pileus white with yellow center; growing in sand. — 4. *A. arenicola.*
    Spores 10–17 μ long.
      Annulus simple, not embracing base of stipe.
        Stipe short, 2.5–5 cm. — 5. *A. macrospora.*
        Stipe long, 5–10 cm. — 6. *A. ventricosa.*
      Annulus embracing base of stipe like a volva. — 7. *A. evanescens.*
  Pileus whitish to lilac-gray variegated with brown spots; spores subglobose, 7 μ. — 8. *A. nardosmia.*
  Pileus distinctly yellowish, yellowish-brown, or tan-colored.
    Pileus 3.5–6 cm. broad; spores 5–9 μ long.
      Surface smooth, not acutely umbonate. — 9. *A. albolanatipes.*
      Surface squamose, acutely umbonate. — 10. *A. umbonata.*
    Pileus 12–20 cm. broad; spores 12–14 μ long. — 11. *A. nobilis.*
Wood-loving species; solitary to cespitose.
  Spores 15–20 μ; pileus white to gray. — 12. *A. alphitophylla.*
  Spores 10 μ or less; pileus not as above.
    Sporophores gregarious; pileus deep-red or chocolate-colored. — 13. *A. umbilicata.*
    Sporophores densely cespitose; pileus honey-yellow to reddish-brown. — 14. *A. putrida.*

1. **Armillaria appendiculata** Peck, Bull. Torrey Club **24**: 140. 1897.

Pileus broadly convex, 5–10 cm. broad; surface glabrous, whitish, often tinged with ferruginous or brownish-ferruginous on the disk; context white or whitish; lamellae close, rounded behind, whitish; spores subellipsoid, 8 × 5 μ; stipe equal above or slightly tapering upward, solid, bulbous, whitish, 4–9 cm. long, 1–2 cm. thick; veil membranous or webby, white, commonly adhering in fragments to the margin of the pileus.

TYPE LOCALITY: Auburn, Alabama.
HABITAT: On the ground.
DISTRIBUTION: Known only from the type locality.

2. **Armillaria viscidipes** Peck, Ann. Rep. N. Y. State Mus. **44**: 128. 1892.

Pileus fleshy, compact, convex to nearly plane, 7.5–15 cm. broad; surface soft, glabrous or at times slightly innate-fibrillose, whitish with a slight yellowish or reddish-yellow tint, cracking longitudinally at times; context white, odor peculiar, penetrating, subalkaline; lamellae narrow, crowded, sinuate or subdecurrent, whitish; spores ellipsoid, 7.5 × 5 μ; stipe equal, solid, viscid and slightly tinged with yellow below the annulus, whitish above, 7.5–10 cm. long, 12–25 mm. thick; annulus narrow, membranous.

TYPE LOCALITY: Rock City, Dutchess County, New York.
HABITAT: Mixed woods.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **44**: *pl. 2, f. 1–3.*

3. **Armillaria magnivelaris** (Peck) Murrill.

Agaricus (Armillaria) ponderosus Peck., Bull. Buffalo Soc. Nat. Sci. **1**: 42. 1873. Not *A. ponderosus* Pers. 1801.
Agaricus magnivelaris Peck, Ann. Rep. N. Y. State Mus. **29**: 66. 1878.
Armillaria ponderosa Sacc. Syll. Fung. **5**: 78. 1887.

Pileus thick, compact, convex or subcampanulate, 10–13 cm. broad; surface smooth, white or yellowish, margin naked or clothed with the appendiculate veil, strongly involute; context white; lamellae crowded, narrow, slightly emarginate, white inclining to cream-colored; spores nearly globose, 4 μ; stipe stout, subequal, firm, solid, coated by the veil, concolorous, white and furfuraceous above the annulus, 10–13 cm. long, 2.5 cm. thick; veil slightly viscid, long persistent, at length lacerate, adhering in shreds to the margin and the stipe.

TYPE LOCALITY: Copake, New York.
HABITAT: On the ground in woods.
DISTRIBUTION: New York and New England.

4. **Armillaria arenicola** Murrill, Mycologia **4**: 212. 1912.

Pileus firm, fleshy, convex to subplane or slightly depressed, gibbous, gregarious, 12–15 cm. broad; surface dry, smooth, glabrous, white or whitish, cremeous at the center; context coarse, white, tasteless; lamellae adnate, becoming sinuate-adnexed or nearly free, ventricose, plane, close, white, changing to rust-colored when bruised; spores globose, smooth, hyaline, 4–6 μ; stipe equal or tapering downward, dry, smooth below, somewhat scaly above the annulus, white tinged with cremeous, 12 cm. long, 3 cm. thick; annulus ample, persistent, membranous, white, attached just above the middle of the stipe.

TYPE LOCALITY: Newport, Oregon.
HABITAT: In sand-hills among scrubby pines.
DISTRIBUTION: Known only from the type locality.

5. **Armillaria macrospora** Peck, Bull. Torrey Club **27**: 610. 1900.

Pileus fleshy, fragile, convex, solitary or cespitose, 5–20 cm. broad; surface glabrous, viscid when moist, shining when dry, white, sometimes brown in the center; context white; lamellae rather narrow, close, decurrent, white; spores oblong or subfusiform, $12–15 \times 6–8 \mu$; stipe short, stout, subequal, white, 2.5–5 cm. long, 1.2–2 cm. thick; annulus thick, white.

TYPE LOCALITY: Colorado.
HABITAT: Dense spruce woods.
DISTRIBUTION: Known only from the type locality.

6. **Armillaria ventricosa** Peck, Bull. Torrey Club **34**: 104. 1907.

Lentinus ventricosus Peck, Bull. Torrey Club **23**: 414. 1896.

Pileus fleshy, convex or nearly plane above, 8–15 cm. broad; surface glabrous, shining, white, margin thin, involute; context white or whitish; lamellae narrow, close, decurrent, sometimes dentate or denticulate on the edges, whitish; spores $10–12 \times 5–6 \mu$; stipe short, thick, ventricose, solid or sometimes hollow through erosion by insects, abruptly narrowed at the base, annulate, white or whitish, 5–10 cm. long, 1.5–2.5 cm. thick.

TYPE LOCALITY: Tacoma Park, Washington, D. C.
HABITAT: On the ground in pine woods.
DISTRIBUTION: Alabama and District of Columbia.

7. **Armillaria evanescens** (Lovejoy) Murrill.

Catathelasma evanescens Lovejoy, Bot. Gaz. **50**: 384. 1910.

Pileus broadly convex to nearly plane, solitary, 13 cm. broad; surface smooth, damp, white, deep-cream in the center, becoming rich-ocher with a reddish tint when dried, margin entire; context whitish, compact, thick at the center, thinner near the margin; lamellae very decurrent, short ones intermixed with long ones, white, 2–3 cm. wide near the margin of the

pileus, becoming narrow near and on the stipe, subdistant, edges acute; spores ellipsoid to fusiform, smooth, hyaline, 14–17.5 × 3–5 μ; stipe very short, thick, fleshy, hollow, smooth, white, becoming rich-ocher tinged with reddish when dried, 4 cm. thick; veil large, white, smooth, opening around the top leaving a thick, even, white margin, persistent and closely embracing the base of the stipe.

TYPE LOCALITY: Brooklyn Lake, Snowy Range, Wyoming, 3500 m. elevation.
HABITAT: Open balsam and spruce woods, occurring singly in sod on thick humus.
DISTRIBUTION: Known only from the type locality.

8. **Armillaria nardosmia** (Ellis) Sacc. Syll. Fung. 5: 86. 1887.

Agaricus nardosmius Ellis, Bull. Torrey Club 6: 75. 1876.

Pileus fleshy, firm, solitary, 6–9 cm. broad; surface fibrillose, whitish to lilac-avellaneous, variegated with brown spots, especially near the center; cuticle thick, tough, separable; context white, thick and compact on the disk, thin toward the margin, odor aromatic; lamellae crowded, subventricose, slightly emarginate, whitish; spores subglobose, 7 μ; stipe solid, fibrous, not bulbous, sheathed below by the brown, velvety veil, 7 cm. long, 1–3 cm. thick; annulus narrow, spreading, uneven on the edge.

TYPE LOCALITY: New Jersey.
HABITAT: Ground in oak or mixed woods.
DISTRIBUTION: Eastern United States, New York to Virginia.
ILLUSTRATION: Hard, Mushrooms *f. 42*.
EXSICCATI: Ellis & Ev. Fungi Columb. *1401*.

9. **Armillaria albolanatipes** Atk. Ann. Myc. 6: 54. 1908.

Pileus convex to expanded, umbonate, solitary or rarely gregarious, 5–6 cm. broad; surface viscid, yellowish to yellowish-brown, darker in the center, margin thin, slightly repand, smooth; context very fragile when dry; lamellae thin, sinuate-adnexed, white to pale-yellowish, subdistant; spores subellipsoid, smooth, hyaline, 6–9 × 4–5 μ; stipe straight, even, solid, white, coarsely floccose, woolly up to the veil, smooth above, 6–8 cm. long, 8–10 mm. thick; veil present when young, persisting as a not very prominent annulus.

TYPE LOCALITY: Corvallis, Oregon.
HABITAT: Among leaves in mixed woods.
DISTRIBUTION: Oregon, California.

10. **Armillaria umbonata** (Sumstine) Murrill.

Vaginata umbonata Sumstine, Mycologia 6: 35. 1914.

Pileus thin, convex or expanded, distinctly conically umbonate, 3.5–5 cm. broad; surface smooth, tan-colored, covered with darker, triangular scales arranged in somewhat concentric zones; lamellae 3–5 mm. broad, ventricose, sinuate, adnexed; spores ovoid to ellipsoid, 5–7 μ; stipe solid, equal, concolorous, with a long bulbous root, 9–12 cm. long; veil at length fimbriate, adhering closely to the stipe below, suggesting a volva.

TYPE LOCALITY: Ohiopyle, Pennsylvania.
HABITAT: In sandy soil.
DISTRIBUTION: Pennsylvania.

11. **Armillaria nobilis** Murrill.

Agaricus imperialis Fries; Lund, Consp. Hymen. Holm. 5. 1845. Not *A. imperialis* Batsch, 1783.
Armillaria imperialis Quél. Champ. Jura. Vosg. 37. 1772.
Mastoleucomyces imperialis O. Kuntze, Rev. Gen. 2: 861. 1891.

Pileus compact, convex to expanded, obtuse, at times slightly depressed, large and striking in appearance, solitary, 11–16 cm. broad and 6–8 cm. thick; surface fuscous-brown, variegated with appressed, obscure scales, especially toward the center, margin glabrous, somewhat striate, subentire, thick, concolorous; context very thick, white; lamellae narrow, white, long-decurrent, several times inserted, subcrowded; spores smooth, hyaline, subfusiform, 12–14 × 5–6 μ; stipe subequal, solid, whitish to subconcolorous, subsquamose below the annulus, 11–14 cm. long, about 4 cm. thick; veil ample, membranous, sheathing the base of the stipe and

forming an inferior, double, persistent annulus, which is whitish on its inner surface and fulvous without.

TYPE LOCALITY: Sweden.
HABITAT: Dry soil under conifers.
DISTRIBUTION: Eastern Canada and northern New England; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 17;* Barla, Champ. Alpes Marit. *pl. 20, f. 1–3;* Gill. Champ. Fr. *pl. 55* (*35*).

12. Armillaria alphitophylla (Berk. & Curt.) Murrill.

Agaricus (*Mycena*) *alphitophyllus* Berk. & Curt. Proc. Am. Acad. **4**: 112. 1860.
Agaricus (*Mycena*) *leucoconis* Berk. & Curt. Proc. Am. Acad. **4**: 113. 1860.
Agaricus (*Amanita*) *cubensis* Berk. & Curt. Jour. Linn. Soc. **10**: 282. 1868.
Agaricus (*Armillaria*) *cheimonophyllus* Berk. & Curt. Jour. Linn. Soc. **10**: 284. 1868.
Mucidula cheimonophylla Pat. Bull. Soc. Myc. **15**: 192. 1899.
Chamaemyces alphitophyllus Murrill, Mycologia **3**: 91. 1911.

Pileus toughish, drying easily, convex to plane or depressed, very variable, solitary, 3–15 cm. broad; surface varying from subglabrous to fibrillose or squamose, and from white or whitish to avellaneous or rarely to isabelline, the disk dark-avellaneous, fuliginous, or at times rosy-isabelline; margin thin, entire, even, or at times striate or plicate; context thin, white; lamellae pure-white, ventricose, rounded-adnate with a decurrent tooth, somewhat mucilaginous and sticking together in a peculiar way when young; spores globose, smooth, hyaline, 16–20 μ; cystidia abundant, protruding, ventricose, tapering at both ends, $100–200 \times 25–40\ \mu$; stipe cylindric and equal above, somewhat enlarged below, white to pale-avellaneous, glabrous, furfuraceous, or somewhat roughened with erect scales, solid, fleshy with a tough rind, 4–6 cm. long, 4–8 mm. thick; veil small, soon appendiculate, not forming a distinct annulus.

TYPE LOCALITY: Bonin Islands.
HABITAT: Exposed hardwood logs and decayed spots in standing trunks.
DISTRIBUTION: Louisiana, Mexico, West Indies; also in the Bonin Islands and Tonkin.

13. Armillaria umbilicata Pat. Bull. Soc. Myc. Fr. 15: 191. 1899.

Pileus fleshy, soft, convex to plane and depressed, more or less umbilicate, gregarious, 1–5 cm. broad; surface moist, smooth, viscid, deep-red or chocolate-colored, paler with age, becoming rusty or whitish, margin not striate; lamellae adnate-decurrent, straight, thin, serrate, whitish, then rusty or brownish; spores ovoid, smooth, colorless, $6–7 \times 3\ \mu$; stipe central, coriaceous, becoming hard and woody, cylindric, equal, fibrillose throughout, pale-rusty, 5–6 cm. long, 3–5 mm. thick; annulus apical, fugacious, fibrillose-membranous.

TYPE LOCALITY: Guadeloupe.
HABITAT: On rotten trunks of *Sloanea Massoni*.
DISTRIBUTION: Known only from the type locality.

14. Armillaria putrida (Scop.) Murrill.

Agaricus putridus Scop. Fl. Carn. ed. 2. **2**: 420. 1772.
Agaricus melleus Vahl, Fl. Dan. 9. 1792. Not *A. melleus* Schaeff. 1774.
Agaricus polymyces Pers. Syn. Fung. 269. 1801.
Agaricus (*Armillaria*) *melleorubens* Berk. & Curt. Jour. Linn. Soc. **10**: 283. 1868.
Armillaria mellea Quél. Champ. Jura Vosg. 38. 1872.
Armillaria solidipes Peck, Bull. Torrey Club **27**: 611. 1900.

Pileus convex to expanded, cespitose, 4–12 cm. broad, very variable; surface usually dry, smooth or becoming striate toward the margin, pale-honey-yellow to dark-reddish-brown, usually adorned with minute tufts of brown or blackish hairs, which are more abundant on the disk; context white or whitish, somewhat acrid and unpleasant to the taste; lamellae adnate or decurrent, white or whitish, becoming discolored or spotted with age, rarely yellow; spores ellipsoid, smooth, hyaline, $7–10 \times 4–6.5\ \mu$; stipe melleous, reddish-brown or dirty-brown below, paler above, nearly equal, firm, fibrous, spongy within, usually floccose-scaly below the annulus, 4–12 cm. long, 5–15 mm. thick; annulus white, cottony, with dark specks, or thin, arachnoid, and evanescent.

TYPE LOCALITY: Carniola.
HABITAT: On stumps and buried roots of both deciduous and evergreen trees.
DISTRIBUTION: Cosmopolitan.

ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **48**: *pl. 20;* Barla, Champ. Nice *pl. 21, 22;* Bull. Herb. Fr. *pl. 377, 543;* Fries, Sv. Aetl. Svamp. *pl. 36;* McIlv. Am. Fungi *pl. 16, f. 1;* Mycologia **1**: *pl. 1, f. 2;* Sow. Engl. Fungi *pl. 101;* Vitt. Descr. Funghi Mang. *pl. 3;* Gill. Champ. Fr. *pl. 54* (*36*); Cooke, Brit. Fungi *pl. 32* (*56*).
EXSICCATI: Clements, Crypt. Form. Colo. *173;* Allesch. & Schn. Fungi Bavar. *58, 60;* Rav. Fungi Car. 2: *1;* Rav. Fungi Am. *407;* Desmaz. Pl. Crypt. *1647;* Herpell, Präp. Hutpilze *4;* Karst. Finl. Fungi *206;* Briosi & Cav. Fung. Par. *166;* Sydow, Myc. Mar. *2, 1408;* Thüm. Fungi Austr. *903;* Roum. Fungi Gall. *4003;* Rab.-Wint. Fungi Eur. *1201;* Ellis & Ev. N. Am. Fungi *3201;* Shear, N. Y. Fungi *102;* D. Sacc. Myc. Ital. *201.*

47. LIMACELLA Earle, Bull. N. Y. Bot. Gard. 5: 447. 1909.

Pileus soft, fleshy, putrescent, decidedly viscid, solitary or gregarious; lamellae free; spores hyaline; veil usually forming an annulus; stipe central, slender, fleshy.

Type species, *Agaricus delicatus* Fries.

Pileus white or pale-yellowish.	
Pileus 1–3 cm. broad, pure-white.	
Stipe 2.5 cm. long.	1. *L. agricola.*
Stipe 5–7 cm. long.	2. *L. albissima.*
Pileus 3–8 cm. broad.	
Spores 4–5 μ long.	3. *L. illinita.*
Spores 9–11 μ long.	4. *L. bentista.*
Pileus white, fulvous to brownish on the disk.	5. *L. fulvodisca.*
Pileus cream-colored with rosy tints.	
Pileus 3–4 cm. broad; stipe 4–6 cm. long.	6. *L. McMurphyi.*
Pileus 6 cm. broad; stipe 5–10 cm. long.	7. *L. roseicremea.*
Pileus isabelline to tawny or brownish.	
Pileus 3–4 cm. broad.	8. *L. glischra.*
Pileus 5–7.5 cm. broad.	9. *L. oblita.*

1. Limacella agricola Murrill, Mycologia 3: 81. 1911.

Pileus convex, regular, rather firm for the genus, 2.5 cm. broad; surface smooth, glabrous, slimy, white, with incurved, striate margin; lamellae free, white, broad, unequal; spores subglobose, smooth, pure-hyaline, often uninucleate, 4–5 μ long; stipe cylindric, even, white, glabrous, shining, slightly bulbous at the base, 2.5 cm. long, 2 mm. thick; annulus superior, slight, evanescent.

TYPE LOCALITY: Constant Spring Hotel, near Kingston, Jamaica.
HABITAT: On a lawn.
DISTRIBUTION: Known only from the type locality.

2. Limacella albissima Murrill.

Lepiota candida Morgan, Jour. Myc. **12**: 202. 1906. Not *L. candida* Copeland. 1905.

Pileus fleshy, ovoid to convex and expanded, subumbonate, 1–3 cm. broad; surface radiate-fibrillose, smooth, pure-white, covered by a very thin viscous epidermal layer, at first continuous, but with the growth of the pileus drawn apart and left as minute scales upon the surface; context thin, white; lamellae narrow, close, free and rather remote, pure-white; spores oblong-ellipsoid, obliquely apiculate, 5–7 × 3–4 μ; stipe long, tapering upward from the clavate base, fistulose, silky-fibrillose or quite smooth, pure-white, 5–7 cm. long, 5–6 mm. thick at the base, tapering to 2–3 mm. at the apex; annulus thin, membranous, persistent.

TYPE LOCALITY: Preston, Ohio.
HABITAT: On the ground among old leaves in woods.
DISTRIBUTION: Known only from the type locality.

3. Limacella illinita (Fries) Murrill.

Agaricus illinitus Fries, Obs. Myc. **2**: 8. 1818.
Lepiota illinita Quél. Champ. Jura Vosg. 326. 1873.

Pileus rather thin, soft, ovoid to campanulate or expanded, subumbonate, 2.5–6 cm. broad; surface smooth, white or whitish, very viscid or glutinous, striate or at times smooth on the margin; context white, soft, odor farinaceous; lamellae free, crowded, white; spores globose or subglobose, smooth, hyaline, 4–5 × 3.5–4 μ; stipe equal or slightly tapering upward, viscid, white, stuffed or hollow, 5–9 cm. long, 4–6 mm. thick; annulus a cushion of fibrils usually covered with slime.

TYPE LOCALITY: Sweden.
HABITAT: Grassy woods and fields.
DISTRIBUTION: Northern United States; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 16;* Pat. Tab. Fung. *f. 609;* Gill. Champ. Fr. *pl. 425.*

4. **Limacella bentista** (Morgan) Murrill.

Lepiota bentista Morgan, Jour. Myc. **13**: 14. 1907.

Pileus fleshy, globose to convex and expanded, 5–8 cm. broad; surface viscid, smooth, membranous, whitish or pale-alutaceous; context thin, white; lamellae narrow, close, white, free; spores ovoid-ellipsoid, 9–11 × 5–6 μ; stipe slightly bulbous at the base, subequal, stuffed, white, smooth but viscid, 6–8 cm. long, 8–12 mm. thick; annulus thin, white, membranous.

TYPE LOCALITY: Blue Mounds, Wisconsin.
HABITAT: On the ground.
DISTRIBUTION: Known only from the type locality.

5. **Limacella fulvodisca** (Peck) Murrill, Mycologia **4**: 212. 1912.

Lepiota fulvodisca Peck, Bull. Torrey Club **22**: 198. 1895.

Pileus thin, fragile, convex or nearly plane, obtuse or umbonate, 2.5–4 cm. broad; surface viscid when moist, white, the disk or umbo fulvous or tawny-brown; lamellae free, white, narrow, crowded; spores ovoid-ellipsoid, smooth, hyaline, usually uninucleate, slightly apiculate at one end, 7.5–10 × 4–5 μ; stipe slender, abruptly bulbous, viscid, white or whitish, hollow, 5–7.5 cm. long, 2–3 mm. thick; annulus thin, membranous, pure-white.

TYPE LOCALITY: Pasadena, California.
HABITAT: Woods or shaded lawns.
DISTRIBUTION: California.

6. **Limacella McMurphyi** Murrill, Mycologia **4**: 213. 1912.

Pileus fleshy, convex, solitary, 3.5–4 cm. broad; surface smooth, glabrous, evidently viscid when fresh, pinkish-cream-colored, not striate; context white, rather thick, with farinaceous taste and odor; lamellae free, crowded, inserted, ventricose, white; spores globose, smooth, hyaline, 3.5–4 μ; stipe slightly tapering upward, subglabrous, even, white, solid, 4–6 × 0.5–1 cm.; annulus superior, ample, persistent, white.

TYPE LOCALITY: Searsville Lake, California.
HABITAT: Among leaves under redwoods.
DISTRIBUTION: Known only from the type locality.

7. **Limacella roseicremea** Murrill, Mycologia **4**: 212. 1912.

Pileus convex to plane, with a broad umbo, slow to expand, solitary, 6 cm. broad; surface smooth, glabrous, viscid, cream-colored tinged with rose, margin inflexed, not striate; context white, odor farinaceous; lamellae free, rather close, arcuate, white; spores globose, smooth corroded, apparently not maturing, white but not transparent, 4–5 μ; stipe subequal, enlarge, at the base, white, fleshy, solid, smooth, glabrous, viscid, often very long, 5–10 cm. long, 0.8–1.2 cm. thick; veil ample, membranous, persistent, superior, remaining for some time stretched from margin to stipe.

TYPE LOCALITY: Seattle, Washington.
HABITAT: On the ground in woods.
DISTRIBUTION: Washington.

8. **Limacella glischra** (Morgan) Murrill.

Lepiota glischra Morgan, Jour. Myc. **12**: 203. 1906.

Pileus fleshy, subovoid to convex and expanded, 3–4 cm. broad; epidermis a thin layer of brown gluten, thickest at the center rendering it darker colored, this glutinous layer being continuous with the marginal veil and running down and enveloping the stipe; context rather thin, white; lamellae broad, close, white, rounded behind, free, approximate; spores globose or ovoid, apiculate, 4–5 × 4 μ; stipe tapering upward, solid, whitish-fibrillose beneath the brown gluten, 4–6 cm. long, 3–4 mm. thick.

TYPE LOCALITY: Preston, Ohio.
HABITAT: Rich soil in woods.
DISTRIBUTION: Ohio and Tennessee.

9. Limacella oblita (Peck) Murrill.

Agaricus (Lepiota) oblitus Peck, Bull. Buffalo Soc. Nat. Sci. 1: 41. 1873.

Pileus fleshy, convex or expanded, subumbonate, 5–7.5 cm. broad; surface smooth or obscurely spotted or scaly from the rupturing of the universal veil, viscid, alutaceous inclining to tawny, the umbo faintly darker; lamellae free, crowded, whitish or yellowish, some of them forked; spores ellipsoid, smooth, hyaline, 5–6 × 3–4 μ; stipe equal or slightly tapering upward, smooth at the apex, floccose and viscid below, hollow or stuffed, 5–7 cm. long, about 6 mm. thick; annulus obsolete.

TYPE LOCALITY: Lowville, New York.
HABITAT: Deciduous woods.
DISTRIBUTION: Known only from the type locality.

48. LEPIOTA P. Browne; S. F. Gray, Nat. Arr. Brit. Pl. 1: 601. 1821.

Vaginarius Roussel, Fl. Calvados ed. 2 59. 1806. Not *Vaginaria* Rich. 1805.
Fusispora Fayod, Ann. Sci. Nat. VII. 9: 351. 1889.
Mastocephalus Batt.; O. Kuntze, Rev. Gen. 2: 859. 1891.

Pileus soft, fleshy, putrescent, never viscid, usually squamulose or pruinose; lamellae free, rarely varying to adnate; spores hyaline, rarely tinged with yellow or brown; veil present, usually forming an annulus; stipe central, usually hollow and enlarged below; volva none.

Type species, *Agaricus procerus* Scop.

Pileus granulose or verrucose with swollen vesicles. — I. GRANULOSAE.
Pileus pruinose, fibrillose, or pulverulent, rarely glabrous, never granulose nor squamulose. — II. PRUINOSAE.
Pileus conspicuously long-striate, thin, squamulose. — III. STRIATAE.
Pileus squamulose, not conspicuously striate.
  Annulus fixed or evanescent.
    Scales appressed, scattered or imbricate. — IV. SQUAMULOSAE.
    Scales prominent, reflexed or pointed. — V. ACUTESQUAMOSAE.
  Annulus movable, persistent; pileus large with large scales. — VI. PROCERAE.

I. GRANULOSAE

Pileus 1–2 cm. broad; species confined to tropical America. — 1. *L. aspratella.*
Pileus 2–6 cm. broad; species confined to temperate regions. — 2. *L. amianthina.*

II. PRUINOSAE

Pileus small, 1–3 cm. broad.
  Stipe glabrous.
    Species confined to the United States.
      Pileus entirely milk-white, unchanging.
        Surface glabrous. — 3. *L. rufipes.*
        Surface densely pulverulent. — 4. *L. hemisphaerica.*
      Pileus tinged with rose or pink.
        Pileus white with pinkish disk, unchanging, 4–8 mm. broad. — 5. *L. cristatella.*
        Pileus white with a rosy tint, rosy-cinereous on drying, 3 cm. broad. — 6. *L. roseicinerea.*
      Pileus tinged with yellow or brown.
        Stipe white, clavate; spores 7–8.5 μ long. — 7. *L. juniperina.*
        Stipe pale-umber below, equal; spores 4–5 μ long. — 8. *L. neophana.*
    Species confined to tropical America.
      Pileus entirely white.
        Spores ovoid, 5 μ long. — 9. *L. lactea.*
        Spores broadly fusiform, 7–8 μ long. — 10. *L. colimensis.*
      Pileus pale-testaceous.
        Pileus 1 cm. broad; stipe and annulus testaceous. — 11. *L. subgranulosa.*
        Pileus 4 mm. broad; stipe and annulus white. — 12. *L. testacea.*
      Pileus avellaneous to fuliginous.
        Pileus umbonate, 1–2 cm. broad. — 13. *L. rimosa.*
        Pileus not distinctly umbonate, 3 cm. broad. — 14. *L. Broadwayi.*
  Stipe pulveraceous or furfuraceous.
    Pileus whitish or pale-pinkish.
      Pileus 4–8 mm. broad, whitish. — 15. *L. pusillomyces.*
      Pileus 1.5–3 cm. broad.
        Lamellae free, broad. — 16. *L. petasiformis.*
        Lamellae reaching the stipe, narrow. — 17. *L. seminuda.*
    Pileus white with isabelline powder; lamellae becoming fumosous on drying. — 18. *L. fumosifolia.*

Pileus blue or becoming so. — 19. *L. cyanozonata.*
Pileus lilac to purple.
Pileus pale-lavender; odor fetid. — 20. *L. ecitodora.*
Pileus whitish, with purple powder; odor not fetid. — 21. *L. purpureoconia.*
Pileus large, 5–10 cm. broad; surface white, silky, subglabrous.
Stipe solid; pileus sometimes pinkish. — 22. *L. solidipes.*
Stipe hollow; pileus sometimes grayish. — 23. *L. naucina.*

III. STRIATAE

Pileus 5–10 cm. broad, white or yellow, usually cespitose; spores 8–11 $\times$5–7 μ; stipe bulbous. — 24. *L. cretacea.*
Pileus 1–5 cm. broad; spores smaller than above.
Pileus white with pallid or dark scales.
Pileus white with pallid scales, rugulose. — 25. *L. rugulosa.*
Pileus white with blackish or brownish scales.
Pileus 2.5–5 cm. broad; spores 6–7.5 μ long.
Stipe 5–7.5 cm. long, clavate below. — 26. *L. longistriata.*
Stipe 4 cm. long, subequal. — 27. *L. subclypeolaria.*
Pileus and spores smaller; stipe not thickened at the base.
Annulus persistent; stipe with a distinct black line at the base. — 28. *L. noctiphila.*
Annulus evanescent or obsolete; stipe without a black line at the base. — 29. *L. nudipes.*
Pileus white with yellow center. — 30. *L. flavodisca.*
Pileus and scales pale-yellow.
Pileus depressed and concolorous at the center; spores not apiculate. — 31. *L. spectabilis.*
Pileus subumbonate and fulvescent at the center; spores apiculate. — 32. *L. flavescens.*
Pileus red or reddish or becoming so; cuticle pale-yellow, breaking into small scales.
Pileus whitish changing to rose-color; lamellae white changing to pink; stipe not bulbous. — 33. *L. rhodopepla.*
Pileus incarnate-brick-colored; lamellae whitish or pale-yellowish; stipe strongly bulbous. — 34. *L. sulphurina.*

IV. SQUAMULOSAE

Stipe smooth, fibrillose at times but free from scales.
Pileus becoming some shade of blue, dark-red, or brown when wounded or on drying.
Pileus changing to blue. — 35. *L. coerulescens.*
Pileus changing to brown or fuliginous.
Stipe 3–7 cm. long, 2–7 mm. thick. — 36. *L. brunnescens.*
Stipe 10 cm. long, 1 cm. thick. — 37. *L. fuliginescens.*
Pileus changing to reddish-brown.
Pileus 2–4 cm. broad.
Lamellae white, becoming fumosous on drying. — 38. *L. castanescens.*
Lamellae white, becoming rose-colored. — 39. *L. roseifolia.*
Pileus 5–10 cm. broad.
Pileus densely cespitose on dead wood; scales minute. — 40. *L. jamaicensis.*
Pileus solitary or subcespitose, terrestrial; scales larger. — 41. *L. americana.*
Pileus not distinctly changing color when wounded or on drying.
Scales white or pallid; the disk at times differently colored.
Pileus 6–12 mm. broad; spores 12–15 μ long. — 42. *L. arenicola.*
Pileus 1.5–4 cm. broad; spores 6–10 μ long.
Disk white or rose-tinted, unchanging. — 43. *L. subnivosa.*
Disk white, changing to brown on drying. — 44. *L. mutata.*
Scales yellow.
Surface white, with pale-yellow scales; stipe white. — 45. *L. alluviina.*
Surface bright-lemon-yellow; stipe pale-yellow. — 46. *L. subflavescens.*
Scales some shade of red, fulvous, or isabelline.
Pileus 1–2 cm. broad.
Surface white with fulvous scales; annulus fulvous. — 47. *L. fulvastra.*
Surface pale-yellow, with cinnamon-colored scales. — 48. *L. mississippiensis.*
Surface reddish-yellow.
Lamellae white, unchanging. — 49. *L. repanda.*
Lamellae changing to red or pink. — 50. *L. maculans.*
Pileus 2–7 cm. broad.
Stipe abruptly bulbous.
Pileus 3–4 cm. broad; stipe 2–3 cm. long. — 51. *L. amanitiformis.*
Pileus 6–7 cm. broad; stipe 7 cm. long. — 52. *L. abruptibulba.*
Stipe not abruptly bulbous.
Surface light-red, purple, or lilac.
Species not occurring on the Pacific coast.
Surface light-red to purple, the cuticle at first continuous then cracking radially; spores 7–11 μ long. — 53. *L. rubrotincta.*
Surface pale-incarnate with darker scales; umbo black; spores 5–6 μ long. — 54. *L. incarnata.*

Species confined to the Pacific coast.
Pileus 2.5–4 cm. broad, rose-lilac with livid center. 55. *L. roseilivida.*
Pileus 4–7 cm. broad, red or purplish with darker center. 56. *L. rubrotinctoides.*
Surface white beneath the rufous cuticle; spores truncate, 5–7 μ long. 57. *L. conspurcata.*
Surface white with isabelline or isabelline-testaceous scales; spores not truncate, 7–9 μ long.
Stipe white, unchanging. 58. *L. Sequoiarum.*
Stipe white, becoming rose-tinted on drying. 59. *L. amplifolia.*
Scales brown, chestnut-brown, blackish, or avellaneous.
Pileus 0.7–2.5 cm. broad.
Scales avellaneous; species confined to tropical North America.
Pileus less than 1 cm. broad; stipe purplish-fuliginous. 60. *L. subcristata.*
Pileus 1 cm. or more broad; stipe white. 61. *L. subgrisea.*
Scales brown or blackish; species confined to temperate North America.
Stipe clavate, glabrous; spores 5–6 μ long. 62. *L. phaeosticta.*
Stipe equal, furfuraceous; spores 10 μ long. 63. *L. Cultorum.*
Pileus 2.5–8 cm. broad.
Surface avellaneous; lamellae yellowish or reddish. 64. *L. avellanea.*
Surface white with brown to fuliginous scales.
Pileus 2.5–4 cm. broad.
Pileus changing to rosy-isabelline on drying. 65. *L. muticolor.*
Pileus not changing on drying. 66. *L. tepeitensis.*
Pileus 5–8 cm. broad.
Stipe glabrous above; species terrestrial. 67. *L. hortensis.*
Stipe floccose-scaly above; species wood-loving. 68. *L. dryophila.*
Surface brown or blackish, usually tinged with purple; lamellae white.
Surface slightly and innately fibrillose. 69. *L. Glatfelteri.*
Surface becoming squamose. 70. *L. felinoides.*
Stipe squamulose like the pileus.
Pileus 1–2.5 cm. broad.
Spores 10 μ or more long.
Lamellae becoming brownish on drying. 71. *L. geniculospora.*
Lamellae not becoming brownish.
Stipe 2.5–4 cm. long; surface of pileus pale-tawny. 72. *L. acerina.*
Stipe 2.5 cm. or less long; surface of pileus brown or tinged with lilac.
Surface brownish tinged with lilac; annulus evanescent. 73. *L. sublilacea.*
Surface not tinged with lilac; annulus persistent. 74. *L. floralis.*
Spores 5–8 μ long.
Pileus 1 cm. or less broad; stipe equal, blackish-brown; annulus persistent, blackish-brown below. 75. *L. gracilis.*
Pileus 1.5–2.5 cm. broad; stipe reddish or tawny below; veil flocculose, not forming an annulus.
Cuticle latericeous; spores 8 × 4 μ. 76. *L. subfelina.*
Cuticle tawny-brown; spores 5–6 × 3 μ. 77. *L. umbrosa.*
Pileus 3–9 cm. broad.
Surface livid or greenish-livid; stipe concolorous; spores 10 μ long. 78. *L. pelidna.*
Surface wood-brown to tawny-olive; spores 6–8 μ long. 79. *L. caloceps.*
Surface alutaceous to pale-umbrinous; spores 8–20 μ long.
Spores oblong-ellipsoid, 8–10 × 5–6 μ. 80. *L. spanista.*
Spores oblong-fusiform, 12–20 × 4–7 μ. 81. *L. clypeolaria.*
Surface castaneous; spores 5–7 μ. 82. *L. nardosmioides.*

V. ACUTESQUAMOSAE

Scales yellow; surface concolorous. 83. *L. scabrivelata.*
Scales brown or blackish.
Wood-loving, confined to tropical America. 84. *L. hemisclera.*
Terrestrial, confined to temperate regions.
Pileus 3–5 cm. broad; surface yellowish with latericeous to blackish-brown scales. 85. *L. fuscosquamea.*
Pileus usually 7–12 cm. broad; surface pale-ferruginous with brown, pointed, separable scales. 86. *L. aspera.*

VI. PROCERAE

Pileus with prominent umbo; stipe 15–25 cm. long; context white, unchanging. 87. *L. procera.*
Pileus not distinctly umbonate; stipe 8–10 cm. long; context becoming brownish-orange on exposure. 88. *L. rhacodes.*

I. **Granulosae.** Pileus granulose or verrucose with swollen vesicles; lamellae varying to adnate; stipe squamose below the inferior annulus.

1. **Lepiota aspratella** Murrill, Mycologia 3: 84. 1911.

Pileus expanded, often becoming depressed, somewhat umbonate, gregarious, 1–2 cm. broad; surface yellowish-brown, thickly studded with small, granular, somewhat conic warts, which are slightly browner than the rest of the surface; lamellae free, white, much crowded, rather broad, ventricose; spores ellipsoid or ovoid, smooth, hyaline, $5 \times 3.5\ \mu$; stipe curved, usually equal, concolorous, floccose-scaly over its entire surface, 2–3 cm. long, 1.5–3 mm. thick; annulus not distinct.

TYPE LOCALITY: Chester Vale, Jamaica.
HABITAT: On a much decayed log in an orange grove.
DISTRIBUTION: Jamaica.

2. **Lepiota amianthina** (Scop.) Quél. Ench. Fung. 7. 1886.

Agaricus amianthinus Scop. Fl. Carn. ed. 2. 2: 434. 1772.
Agaricus granulosus Batsch, Elench. Fung. 1: 79. 1783.
Agaricus ochraceus Bull. Herb. Fr. *pl. 362.* 1787.
Agaricus croceus Bolt. Hist. Fung. Halifax 2: 51. 1788.
Agaricus granulosus cinnabarinus Alb. & Schw. Consp. Fung. 147. 1805.
Agaricus carcharias Pers. Tent. Disp. Fung. 16. 1797.
Lepiota granulosa S. F. Gray, Nat. Arr. Brit. Pl. 1: 602. 1821.
Agaricus granosus Morgan, Jour. Cinc. Soc. Nat. Hist. 6: 63. 1883.
Lepiota pulveracea Peck, Ann. Rep. N. Y. State Mus. 54: 144. 1901.
Lepiota adnatifolia Peck, Bull. N. Y. State Mus. 10: 947. 1902.

Pileus ovoid to campanulate and expanded, subumbonate, 2–6 cm. broad; surface finely to coarsely granulose, ochraceous to reddish-ferruginous varying to pallid or pinkish; context thin, white or yellowish, often with a disagreeable odor; lamellae free to adnexed or adnate, rather broad, close, white becoming yellowish; spores ellipsoid or subglobose, smooth, hyaline, $3–7 \times 2.5–4\ \mu$; stipe subequal, slender, fistulose, scaly below the annulus and concolorous, 4–8 cm. long, 2–7 mm. thick; veil lacerate, more or less appendiculate.

TYPE LOCALITY: Carniola.
HABITAT: On the ground or on dead wood in woods.
DISTRIBUTION: Throughout temperate North America; also in Europe.
ILLUSTRATIONS: Barla, Champ. Nice *pl. 16, f. 1–11;* Bull. Herb. Fr. *pl. 362;* Cooke, Brit. Fungi *pl. 213 (40), 42 (37), 43 (38), 18 (39);* Boudier, Ic. Myc. *pl. 14–16;* Pat. Tab. Fung. *f. 610, 611;* Hussey, Ill. Brit. Myc. 1: *pl. 45;* Sow. Engl. Fungi *pl. 19;* Journ. Cinc. Soc. Nat. Hist. 6: *pl. 3;* Gill. Champ. Fr. *pl. 44 (412).*
EXSICCATI: Ellis & Ev. N. Am. Fungi *2001;* Sydow, Myc. Mar. *1405, 2702;* Karst. Finl. Fungi *205;* Herpell, Präp. Hutpilze *117;* Roum. Fungi Gall. *3902;* Allesch. & Schn. Fungi Bavar. *234, 235;* Jacz. Fungi Rossiae *283;* Krieger, Fungi Sax. *527, 573.*

II. **Pruinosae.** Pileus pruinose, fibrillose, pulverulent, or glabrescent, rarely glabrous from the first; cuticle continuous, rarely cracking to form large areoles but never forming scales.

3. **Lepiota rufipes** Morgan, Jour. Myc. 12: 156. 1912.

Pileus slightly fleshy, convex, smooth and glabrous, white, about 1 cm. broad; lamellae broad, close, white, free, approximate; spores oblong, $4–5 \times 3\ \mu$; stipe slender, smooth, glabrous, rufescent, paler at the summit, 2–3 cm. long; annulus evanescent.

TYPE LOCALITY: Preston, Ohio.
HABITAT: On the ground among old leaves in woods.
DISTRIBUTION: Known only from the type locality.

4. **Lepiota hemisphaerica** Murrill, sp. nov.

Pileus small, rather thick, campanulate to hemispheric, with a prominent, rounded umbo, scattered, 1–1.5 cm. broad; surface uniformly milk-white, unchanging, densely pulverulent, not glabrescent, margin entire, concolorous; lamellae broad, plane, subdistant, yellowish, unchanging; spores irregularly ellipsoid, appendiculate, smooth, hyaline, $4 \times 2\ \mu$; stipe very slender, equal, pruinose to subglabrous, white with a rufous tint, slightly darker on drying, 2–3.5 cm. long, 1–1.5 mm. thick; veil slight, evanescent.

Type collected on the ground in mixed woods among dead leaves and sticks at Unaka Springs, Tennessee, August 18–24, 1904, *W. A. Murrill 879.*
DISTRIBUTION: Known only from the type locality.

5. **Lepiota cristatella** (Peck) Sacc. Syll. Fung. **5**: 47. 1887.

Agaricus cristatellus Peck, Ann. Rep. N. Y. State Mus. **35**: 163. 1884.

Pileus thin, convex, subumbonate, 4–8 mm. broad; surface minutely mealy, especially on the margin, white, the disk slightly tinged with pink, margin at times somewhat appendiculate; lamellae free, rounded behind, crowded, white; spores subellipsoid, smooth, hyaline, 5 μ long; stipe slender, whitish, hollow, 2.5 cm. long, 1 mm. thick; annulus obsolete.

TYPE LOCALITY: Copake, New York.
HABITAT: Mossy places in woods.
DISTRIBUTION: New England to Michigan and south to Missouri.

6. **Lepiota roseicinerea** Murrill, sp. nov.

Pileus convex to subexpanded, with a slight umbo, solitary, 3 cm. broad; surface nearly white with a rosy tint, dry, pruinose, becoming rosy-cinereous on drying, the small, slightly depressed umbo somewhat darker; lamellae crowded, plane, reaching the enlarged apex of the stipe, concolorous when fresh and on drying, except behind where they change to umbrinous; spores ellipsoid, appendiculate, uninucleate, smooth, with a faint yellowish tint, 6–7$\times$4 μ; stipe very long, tapering upward from a clavate base, fibrillose, subconcolorous, 7 cm. long, 1–3 mm. thick above, 8 mm. thick at the base; veil slight, evanescent.

Type collected on the ground among dead leaves in woods in the New York Botanical Garden, September 9, 1911, *W. A. Murrill.*
DISTRIBUTION: Known only from the type locality.

7. **Lepiota juniperina** Murrill, sp. nov.

Pileus convex to subexpanded, slightly umbonate at times, gregarious, 2.5 cm. broad; surface dry, smooth, whitish tinged with isabelline, pubescent or fibrillose to subglabrous, glabrous on the disk, margin entire, not striate; lamellae narrow, crowded, not ventricose, white, unchanging; spores ellipsoid, appendiculate, smooth, hyaline, 7–8.5$\times$3.5–5 μ; stipe tapering upward from a clavate base, smooth, glabrous, white, hollow, 5–7.5 cm. long, 3–6 mm. thick; annulus median, ample, persistent, white, attached by the lower edge.

Type collected on the ground under red cedar trees at Elizabethton, Tennessee, August 7–10, 1904, *W. A. Murrill 464.*
DISTRIBUTION: Known only from the type locality.

8. **Lepiota neophana** Morgan, Jour. Myc. **12**: 248. 1906.

Pileus fleshy, ovoid to campanulate and expanded, subumbonate, 2–3 cm. broad; surface smooth and glabrous, buff to pale-umber, dark-brown in the center, the cuticle continuous or at maturity sometimes cracking into irregular areolae; context thin, firm, white, tough; lamellae broad, close, white, obtuse behind, free, approximate; spores oblong, obliquely apiculate, 4–5$\times$3 μ; stipe slender, subequal, tough, fistulose, white above the annulus, pale-umber below, with a white-fibrillose cuticle, 3–4 cm. long, 2–3 mm. thick.

TYPE LOCALITY: Preston, Ohio.
HABITAT: On the ground in woods.
DISTRIBUTION: Known only from the type locality.

9. **Lepiota lactea** Murrill, Mycologia **3**: 81. 1911.

Pileus thin, convex, slightly umbonate, solitary, 1–1.5 cm. broad; surface white, smooth, slightly silky, especially near the margin; lamellae free, crowded, rather broad, plane, white; spores ovoid, regular, smooth, hyaline, 5$\times$3.5 μ; stipe white, hollow, subglabrous, tapering upward from an enlarged base, 4 cm. long, 2–5 mm. thick; annulus large, white, persistent, near the middle of the stipe.

TYPE LOCALITY: Santiago de las Vegas, Cuba.
HABITAT: On the ground in a banana field.
DISTRIBUTION: Known only from the type locality.

10. **Lepiota colimensis** Murrill, Mycologia **3**: 82. 1911.

Pileus convex, regular, solitary, not umbonate, 1.5 cm. broad, 5 mm. high; surface dry, white, delicately floccose, not scaly, the center concolorous; lamellae free, white; spores broadly fusiform, smooth, pure-hyaline, 7–8 × 3.5–4.5 μ; stipe long, slender, white with an avellaneous tint, cepaeform at the base, 4 cm. long, 2 mm. thick above, 7 mm. thick below; annulus superior, large, white, persistent, apparently fixed.

TYPE LOCALITY: Colima, Mexico.
HABITAT: On the ground in an orchard.
DISTRIBUTION: Mexico.

11. **Lepiota subgranulosa** Murrill, Mycologia **3**: 83. 1911.

Pileus hemispheric, 1 cm. broad, 5 mm. high, solitary; surface testaceous, finely pulverulent, adorned with minute, conic tufts of fibrils; lamellae free, narrow, close, white to stramineous; spores ellipsoid, smooth, hyaline, a few distinctly uninucleate, not apiculate, 7 × 3.5 μ; stipe testaceous, fibrillose, cylindric, equal, not enlarged at the base, rose-colored at the apex, 1.5 cm. long, 2 mm. thick; annulus testaceous, superior, very close to the lamellae, fixed by the lower margin, the free limb narrow and perpendicular to the stipe.

TYPE LOCALITY: Xuchiles, near Cordoba, Mexico.
HABITAT: On the ground in coffee plantations.
DISTRIBUTION: Known only from the type locality.

12. **Lepiota testacea** Murrill, Mycologia **3**: 83. 1911.

Pileus conic, truncate, regular, 4 mm. broad, 2 mm. high, solitary; surface smooth, pale-testaceous, covered with fine tomentum, margin fibrillose; lamellae free, white, ventricose, broad; spores ovoid, smooth, hyaline, uninucleate, 7 × 3.5–4 μ; stipe cylindric, enlarged at the base, glabrous, white, 1 cm. long, scarcely 1 mm. thick; annulus superior, large, persistent, white, fixed by the lower margin.

TYPE LOCALITY: Chester Vale, Jamaica.
HABITAT: In rich soil on a damp, shaded bank.
DISTRIBUTION: Jamaica.

13. **Lepiota rimosa** Murrill, Mycologia **3**: 85. 1911.

Pileus convex to expanded, umbonate, gregarious, 1–2 cm. broad; surface smoky-fuliginous, paler with age, faintly striate, often splitting from the margin, covered with a granular coating which cracks areolately with age exposing the white flesh; lamellae free, crowded, very broad, somewhat ventricose, white; spores subglobose or broadly ovoid, smooth, hyaline, 4 μ long; stipe cylindric, white, subglabrous, 2–4 cm. long, 1–2 mm. thick; annulus small, white, persistent, about the middle of the stipe.

TYPE LOCALITY: Santiago de las Vegas, Cuba.
HABITAT: On the ground in a garden.
DISTRIBUTION: Cuba and South Carolina.

14. **Lepiota Broadwayi** Murrill, Mycologia **3**: 84. 1911.

Pileus expanded, regular, scarcely umbonate, about 3 cm. broad; surface dry, subglabrous, striate, avellaneous, fuliginous at the center, the cuticle remaining almost unbroken; lamellae free, white, broad, unequal; spores perfectly globose, hyaline, smooth, 5 μ; stipe 3 cm. long, 3 mm. thick, enlarged above, hollow, glabrous, whitish; annulus white, ample, superior, persistent, apparently fixed.

TYPE LOCALITY: Hyde Park, St. George's, Grenada.
HABITAT: On the ground between roots of trees.
DISTRIBUTION: Grenada.

15. **Lepiota pusillomyces** (Peck) Sacc. Syll. Fung. **5**: 48. 1887.

Agaricus (*Lepiota*) *pusillomyces* Peck, Ann. Rep. N. Y. State Mus. **28**: 48. 1876.

Pileus thin, subcampanulate or convex, subumbonate, 4–8 mm. broad; surface whitish or dingy, minutely granular-mealy; lamellae free, white, broad, crowded; spores ellipsoid,

smooth, hyaline, 4–5 μ long; stipe slender, equal, concolorous, rough with a granular mealiness, about 2 cm. long and 1 mm. thick; annulus wanting.

TYPE LOCALITY: Lake Pleasant, New York.
HABITAT: On the ground under bracken ferns.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **28**: *pl. 1, f. 1–3.*

16. **Lepiota petasiformis** Murrill, Mycologia **4**: 232. 1912.

Pileus thin, hat-shaped, with prominent conic umbo, scattered or gregarious, 1.5–2.5 cm. broad; surface dry, rosy-isabelline, or about the color of the back of the hand, covered with an abundance of fine powder; lamellae free, subdistant, rather broad, white; spores ellipsoid, smooth, hyaline, minute, 3.5×2 μ; stipe slender, tapering upward, clothed with powder like the pileus, reaching 6 cm. long and 2–3 mm. thick; veil fugacious, not forming an annulus.

TYPE LOCALITY: Seattle, Washington.
HABITAT: In humus in woods.
DISTRIBUTION: Washington.

17. **Lepiota seminuda** (Lasch) Quél. Champ. Jura Vosg. 210. 1872.

Agaricus seminudus Lasch, Linnaea **3**: 157. 1828.

Pileus very thin, campanulate to expanded, umbonate, 2–3 cm. broad; surface floccose-mealy, at length naked, whitish or pinkish, the margin appendiculate with the torn veil; lamellae rather narrow, white, reaching the stipe; spores ovoid, 3–4×2.5 μ; stipe hollow, slender, farinaceous, 3–5 cm. long, about 2 mm. thick.

TYPE LOCALITY: Brandenburg, Germany.
HABITAT: On the ground in woods.
DISTRIBUTION: Eastern United States; also in Europe.

18. **Lepiota fumosifolia** Murrill, Mycologia **4**: 233. 1912.

Pileus convex, not umbonate, gregarious, 3 cm. broad; surface dry, white with isabelline, powdery scales, the center isabelline; lamellae free, broad, rather crowded, white, becoming fumosous on drying; spores oblong-fusiform, smooth, hyaline, 12×7 μ; stipe equal or tapering upward, cylindric, smooth, white, furfuraceous, pale-avellaneous below, 6 cm. long, 6 mm. thick; veil soon breaking into fragments which cling to the margin and stipe.

TYPE LOCALITY: Seattle, Washington.
HABITAT: On the ground in woods.
DISTRIBUTION: Known only from the type locality.

19. **Lepiota cyanozonata** Longyear, Rep. Mich. Acad. Sci. **3**: 57. 1902.

Pileus thin except at the disk, conic-convex to expanded, broadly umbonate, 1–1.8 cm. broad; surface cream-colored or pinkish-white with a narrow zone of light-blue near the margin, brownish-tan when dry, fibrillose when young, soon becoming glabrous, slightly uneven on the margin; context whitish, becoming brownish when bruised; lamellae free, scarcely crowded, thin, soft, whitish, becoming dingy-brown on drying; spores globose, smooth, hyaline, 6–8 μ; stipe equal, whitish, minutely silky at the apex, squamulose below, narrowly fistulose, 2–3 cm. long, 2 mm. thick; annulus delicate, fibrous, usually evanescent.

TYPE LOCALITY: Leslie, Michigan.
HABITAT: Decaying sticks on the ground in woods.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Rep. Mich. Acad. Sci. **3**: *pl. 1, f. 1.*

20. **Lepiota ecitodora** Atk. Jour. Myc. **8**: 115. 1902.

Pileus convex, 2 cm. broad; surface pale-lavender, minutely scaly; context thin, white, with fetid odor resembling that of eciton ants; lamellae rounded behind, narrow in front, 3 mm. broad, white tinged with yellow; spores cylindric, smooth, hyaline, 9–11×2–2.5 μ;

stipe rather tough, attenuate below, white and pruinose at the apex, dark-brown to blackish below, 5 cm. long, 2.5 mm. thick; annulus powdery, evanescent.

Type locality: Ithaca, New York.
Habitat: On the ground in woods.
Distribution: Known only from the type locality.

21. **Lepiota purpureoconia** Atk. Jour. Myc. **8**: 116. 1902.

Pileus very thin, convex, scattered, 1–2 cm. broad; surface whitish, but covered with a heliotrope-purple, powdery substance that forms the universal veil; context white tinged with yellow; lamellae close but free, rounded, rather distant, broad, stout, white, tinged with yellow; spores ellipsoid, smooth, hyaline, $8–10 \times 3–4\ \mu$; stipe fleshy, even, whitish, covered with heliotrope-purple powder below the annulus, solid; annulus evanescent.

Type locality: Ithaca, New York.
Habitat: On the ground in woods.
Distribution: Known only from the type locality.

22. **Lepiota solidipes** Peck, Bull. N. Y. State Mus. **5**: 647. 1899.

Pileus fleshy, very convex or subhemispheric, becoming broadly convex or nearly plane, 5–10 cm. broad; surface smooth, glabrous, white, sometimes with a slight pinkish tint; context white, taste and odor farinaceous; lamellae thin, free, crowded, white; spores globose or subglobose, smooth, hyaline, $4–5\ \mu$; stipe equal, at times somewhat bulbous, white or whitish, silky-fibrillose, solid, 5–10 cm. long, 8–16 mm. thick; annulus large, thin, membranous, slightly floccose externally, subevanescent.

Type locality: Saratoga, New York.
Habitat: Damp or swampy ground.
Distribution: Known only from the type locality.

23. **Lepiota naucina** (Fries) Quél. Champ. Jura Vosg. 35. 1872.

Agaricus (*Lepiota*) *naucinus* Fries, Epicr. Myc. 16. 1838.
Agaricus (*Lepiota*) *naucinoides* Peck, Ann. Rep. N. Y. State Mus. **29**: 66. 1876.

Pileus very fleshy, subglobose and obtuse to convex and subexpanded, subumbonate, gregarious, 4–9 cm. broad; surface white or slightly yellowish, commonly smooth and glabrous. but sometimes with the thin cuticle broken up into very minute fibrillose scales; context thick, white; lamellae rather broad, close, free, white, slowly changing to pinkish-brown or smoky-brown with age; spores ovoid-ellipsoid, apiculate, uniguttulate, hyaline or faintly pinkish, $7–9 \times 5–6\ \mu$; stipe tapering upward from the clavate base, fistulose or fibrous-stuffed, white, smooth and glabrous or becoming slightly fibrillose toward the base, 5–12 cm. long, 0.5–1.5 cm. thick at the apex, 1–3 cm. thick at the base; annulus thin, membranous, white, persistent.

Type locality: Europe.
Habitat: Grassy grounds, pastures, and roadsides.
Distribution: Eastern United States, westward to Kansas and California; also in Europe.
Illustrations: Ann. Rep. N. Y. State Mus. **48**: *pl. 19;* Atk. Stud. Am. Fungi *f. 79, 80;* McIlv. Am. Fungi *pl. 15;* Vitt. Descr. Funghi Mang. *pl. 40;* Gill. Champ. Fr. *pl. 37* (*428*).

III. **Striatae.** Pileus thin, squamulose, conspicuously long-striate.

24. **Lepiota cretacea** (Bull.) Morgan, Jour. Myc. **13**: 3. 1907.

Agaricus cretaceus Bull. Herb. Fr. *pl. 374.* 1787.
Agaricus luteus With. Bot. Arr. **3**: 344. 1792.
Agaricus cepaestipes Sow. Engl. Fungi *pl. 2.* 1795.
Hiatula fragilissima Berk. & Rav. Ann. Nat. Hist. II. **12**: 422. 1853.
Agaricus (*Lepiota*) *subremotus* Berk. & Curt. Ann. Nat. Hist. III. **4**: 1. 1859.
Agaricus (*Lepiota*) *sordescens* Berk. & Curt. Jour. Linn. Soc. **10**: 283. 1868.
Agaricus (*Lepiota*) *cheimonoceps* Berk. & Curt. Jour. Linn. Soc. **10**: 283. 1868.
Lepiota cepaestipes Quél. Champ. Jura Vosg. 35. 1872.
Lepiota farinosa Peck, Ann. Rep. N. Y. State Mus. **43**: 35. 1890.
Lepiota mammaeformis Underw. Bull. Torrey Club **24**: 82. 1897.
? *Lepiota Earlei* Peck, Bull. Torrey Club **25**: 368. 1898.
Lepiota xylophila Peck, Bull. Torrey Club **34**: 97. 1907.

Pileus thin or submembranous, at first subovoid with an obtuse apex, then campanulate

and expanded, umbonate, gregarious or cespitose, 5–10 cm. broad; surface white varying to lemon-yellow or orange-yellow throughout, often brownish on the umbo, densely flocculose-scaly and farinaceous, plicate-sulcate on the margin, the cuticle thin, very soon separating into minute scales which are more or less deciduous; lamellae rather narrow, close, free; spores ovoid-ellipsoid, hyaline, uniguttulate, 8–11 × 5–7 μ; stipe arising from the more or less elongate and thickened base, tapering upward, flexuous, hollow, subglabrous above, clothed like the pileus below; 8–16 cm. long, 4–6 mm. thick at the apex, 1–2 cm. thick at the base; annulus thin, membranous, subpersistent.

TYPE LOCALITY: France.
HABITAT: Rich soil in gardens, hot beds, and woods.
DISTRIBUTION: Cosmopolitan.
ILLUSTRATIONS: Bull. Herb. Fr. *pl. 374;* Bull. N. Y. State Mus. 94: *pl. 87;* Boudier, Ic. Myc. *pl. 19;* Cooke, Brit. Fungi *pl. 5* (*36*), *1110, 1103;* Gill. Champ. Fr. *pl. 35* (*414*); Hard, Mushrooms *37;* Sow. Engl. Fungi *pl. 2.*

25. **Lepiota rugulosa** Peck, Bull. Torrey Club **27**: 15. 1900.

Pileus thin, submembranous, broadly convex or nearly plane, umbonate, 1.2–2 cm. broad; surface rugulose, at least when dry, whitish, widely striate on the margin; lamellae free, thin, crowded, narrow, whitish; spores ellipsoid, smooth, hyaline, 7.5 × 4 μ; stipe short, equal, whitish, slightly silky, about 2.5 cm. broad and 2 mm. thick; annulus thin, white, persistent.

TYPE LOCALITY: Washington, District of Columbia.
HABITAT: Moist grassy places under trees.
DISTRIBUTION: Known only from the type locality.

26. **Lepiota longistriata** Peck, Bull. Torrey Club **25**: 368. 1898.

Pileus thin, convex or nearly plane, umbonate, 2.5–5 cm. broad; surface hairy-squamulose, striate nearly or quite to the umbo, whitish or pale-gray, brownish on the umbo; lamellae free, narrow, crowded, minutely floccose on the edges, yellowish-white, becoming darker on drying; spores ellipsoid, smooth, hyaline, 6–7.5 × 4–5 μ; stipe slender, tapering upward from the thickened base, hollow, 5–7.5 cm. long, 2–6 mm. thick; annulus delicate, white, evanescent.

TYPE LOCALITY: Alabama.
HABITAT: In gardens, on lawns, or in woods.
DISTRIBUTION: Alabama, Cuba, and Jamaica.

27. **Lepiota subclypeolaria** (Berk. & Curt.) Sacc. Syll. Fung. **5**: 67. 1887.

Agaricus (*Lepiota*) *subclypeolarius* Berk. & Curt. Jour. Linn. Soc. **10**: 283. 1868.

Pileus ovoid to plane, thin, umbonate, about 4 cm. broad; surface radiate-striate, floccose-squamose, white, fuscous on the umbo; lamellae free, remote, distant; spores broadly ellipsoid, smooth, hyaline, averaging 6 × 4.3 μ; stipe subequal, glabrous, white, 4 cm. long; annulus median.

TYPE LOCALITY: Cuba.
HABITAT: On roots of trees or dead wood.
DISTRIBUTION: Known only from the type locality.

28. **Lepiota noctiphila** (Ellis) Sacc. Syll. Fung. **5**: 50. 1887.

Agaricus (*Lepiota*) *noctiphilus* Ellis, Bull. Torrey Club **5**: 45. 1874.

Pileus fleshy, cylindric or hemispheric becoming convex or at times depressed, rather broadly umbonate, subcespitose, reaching 2.5 cm. broad; surface dotted, especially on the disk, with fine, blackish scales, which may be easily rubbed off, sulcate-striate on the margin, at length striate nearly to the center; context thin, white, very thin toward the margin; lamellae free, rounded behind, subcrowded, serrulate on the edges, white; spores ellipsoid, smooth, hyaline, about 5 μ long; stipe slender, about 2.5 cm. long, farinose-squamose, loosely stuffed, surrounded by a distinct black line at the base; annulus superior, persistent.

TYPE LOCALITY: Newfield, New Jersey.
HABITAT: On a bank of earth in an unfinished cellar.
DISTRIBUTION: Known only from the type locality.

29. **Lepiota nudipes** Peck, Bull. Torrey Club **33**: 213. 1906.

Pileus thin, convex-umbonate, 1.2–2 cm. broad; surface minutely brownish-squamulose, whitish, the umbo darker brown and smooth, the margin becoming obscurely striate; context white, without odor; lamellae thin, free, ventricose, subcrowded, white; spores ellipsoid, smooth, hyaline, 5–6×3–4 μ; stipe slender, fibrous, equal or subequal, pallid, brownish and fibrillose below, 2.5–4 cm. long, scarcely 1 mm. thick; annulus evanescent or obsolete.

TYPE LOCALITY: St. Louis, Missouri.
DISTRIBUTION: Known only from the type locality.

30. **Lepiota flavodisca** Murrill, Mycologia **3**: 82. 1911.

Pileus thin, conic to subexpanded, the center remaining conic in form, solitary, 2 cm. broad; surface white, minutely crested, long and deeply striate, becoming plicate on drying, the center flavous, subglabrous to granulose; lamellae white, free, rather crowded; spores ovoid, smooth, hyaline, uninucleate, 5–7×3–4 μ; stipe slender, enlarged and flavous at the base, hollow, minutely tomentose, 3 cm. long; annulus slight, evanescent.

TYPE LOCALITY: Santiago de las Vegas, Cuba.
HABITAT: In Bermuda grass sod.
DISTRIBUTION: Known only from the type locality.

31. **Lepiota spectabilis** Clem. Bot. Surv. Neb. **3**: 12. 1894.

Pileus thin, depressed on the disk, solitary, 2–2.5 cm. broad; surface smooth, pale-sulfur-yellow, silky-fibrous or pulverulent, striate-sulcate on the margin; lamellae crowded, narrow, light-yellow; spores ovoid, not apiculate, smooth, hyaline, uninucleate, 5–6×3–4 μ; stipe slender, much enlarged at the base, squamulose above, glabrous below, 3–4 cm. long; annulus inferior, stramineous, fissured.

TYPE LOCALITY: Lincoln, Nebraska.
HABITAT: On soil in greenhouses.
DISTRIBUTION: Known only from the type locality.

32. **Lepiota flavescens** Morgan, Jour. Myc. **13**: 5. 1907.

Lepiota Allenae Peck, Bull. N. Y. State Mus. 150: 56. 1911.

Pileus submembranous, ovoid to campanulate and expanded, subumbonate, 2–4 cm. broad; surface radiate-fibrillose, becoming scaly, sulcate nearly to the center, pale-yellow, fulvescent on the umbo; lamellae narrow, distant, free, white or yellowish; spores oblong-ellipsoid, obliquely apiculate, uniguttulate, 5–6×3–4 μ; stipe slender, tapering upward, fistulose, rufescent beneath the white-fibrillose cuticle, 3–5 cm. long, 2–4 mm. thick; annulus thin, membranous, yellowish, persistent.

TYPE LOCALITY: Preston, Ohio.
HABITAT: On the ground under *Robinia* and *Gleditsia* trees.
DISTRIBUTION: Known only from the type locality.

33. **Lepiota rhodopepla** Morgan, Jour. Myc. **13**: 6. 1907.

Pileus submembranous, ovoid to campanulate and expanded, subumbonate, 1–2 cm. broad; surface radiate-fibrillose, rimulose-sulcate nearly to the center, beneath the cuticle whitish changing to rose-color, cuticle very thin, pale-yellow, soon separating into furfuraceous scales; lamellae rather broad, subdistant, whitish changing to pinkish; spores oblong-ellipsoid, 6–8×4–5 μ; stipe tapering upward, fistulose, rose-colored beneath the white-fibrillose cuticle, 2–3 cm. long, 1–2 mm. thick; annulus thin, membranous, pale-yellow.

TYPE LOCALITY: Preston, Ohio.
HABITAT: On the ground among weeds in cultivated fields.
DISTRIBUTION: Known only from the type locality.

34. **Lepiota sulphurina** (Clem.) Sacc. Syll. Fung. **14**: 67. 1899.

Mastocephalus sulphurinus Clem. Bot. Surv. Neb. **4**: 18. 1896.

Pileus subfleshy, campanulate to convex with distinct umbo, 1.5–3 cm. broad; surface glabrous, incarnate-brick-colored, with silky, sulfur-yellow pellicle torn into crowded, oblong

or elliptic scales, margin floccose, distinctly striate-plicate; lamellae touching the collar, crowded, linear, whitish or pale-stramineous; spores ovoid-ellipsoid, smooth, hyaline, uninucleate, 7–9 × 4–5 μ; stipe slender, strongly bulbous, increasing above, pruinose, shining-isabelline, fistulose, yellow and floccose at the base, 4 cm. long, about 3–4 mm. thick at the center, the bulb 6–7 mm. thick; annulus superior, fixed, sulfur-yellow, lacerate.

TYPE LOCALITY: Lincoln, Nebraska.
HABITAT: On the ground.
DISTRIBUTION: Known only from the type locality.

IV. **Squamulosae.** Pileus appressed-squamulose, not conspicuously striate.

35. **Lepiota coerulescens** Peck, Bull. Torrey Club **26**: 63. 1899.

Pileus thin, convex, obtuse or slightly umbonate, 1.5–2 cm. broad; surface whitish, squamulose, the squamules and the center brownish, the entire surface becoming blue on drying; context white, becoming blue on drying; lamellae thin, free, crowded, white, becoming blue on drying; spores ellipsoid, smooth, hyaline, 7 × 5 μ; stipe equal, slender, brownish, 3–5 cm. long, 2 mm. thick; annulus membranous, persistent, white, externally tinged with blue when dry.

TYPE LOCALITY: Ohio.
HABITAT: On the ground.
DISTRIBUTION: Ohio and Missouri.

36. **Lepiota brunnescens** Peck, Bull. Torrey Club **31**: 177. 1904.

Lepiota rufescens Morgan, Jour. Myc. **12**: 246. 1906.

Pileus thin, convex or nearly plane, usually obtuse or umbonate, 2–8 cm. broad, the entire plant changing to brown when bruised or after 12–24 hours of drying; surface whitish, the cuticle soon cracking and forming chestnut-colored squamules except in the center, margin often rosy, radiate-rimose at times; context white, taste sweet; lamellae free, at first white, crowded, ventricose; spores ovoid, appendiculate, smooth, hyaline, yellowish in mass, 6–8 × 4–5 μ; stipe equal or slightly enlarged below, white, changing at first to reddish-brown and then to brown below the annulus on drying, fibrous to glabrous, hollow, 3–7 cm. long, 2–7 mm. thick; annulus median, fixed, usually ample and persistent.

TYPE LOCALITY: St. Louis, Missouri.
HABITAT: Open woods and grassy places.
DISTRIBUTION: New York, New Jersey, Ohio, Missouri, and southern California.

37. **Lepiota fuliginescens** Murrill, Mycologia **4**: 236. 1912.

Pileus convex to subexpanded, solitary, about 8 cm. broad; surface dry, finely imbricate-floccose-scaly, slightly rimose, white with rosy tints, becoming fuliginous on drying; lamellae free, distant, narrow, arcuate, white, changing to pale-latericeous on drying; spores regularly ovoid, smooth, hyaline, 6 × 4 μ; stipe long and twisted owing to its struggle through the leaves, tapering upward, polished, hollow, colored and changing like the pileus, about 10 × 1 cm.; annulus superior, ample, fixed, white to pale-fuliginous.

TYPE LOCALITY: La Honda, California.
HABITAT: On the ground in a redwood forest.
DISTRIBUTION: Known only from the type locality.

38. **Lepiota castanescens** Murrill, Mycologia **4**: 234. 1912.

Pileus small, thin, convex to subexpanded, prominently umbonate, 2–3 cm. broad; surface dry, densely appressed-fibrillose, white to rose-colored, glabrous and darker-red on the umbo, the entire surface changing to castaneous on drying; lamellae free, crowded, narrow, plane, white, becoming fumosous on drying; spores ellipsoid, smooth, pointed, strictly hyaline, 7–8 × 3–4 μ; stipe tapering upward, slender, slightly fibrillose, hollow, about 6 cm. long and 2–5 mm. thick, white or rose-tinted, changing to castaneous on drying; annulus superior, fixed, ample, persistent, white, changing to castaneous on drying.

TYPE LOCALITY: Seattle, Washington.
HABITAT: On the ground in woods.
DISTRIBUTION: Known only from the type locality.

39. **Lepiota roseifolia** Murrill, Mycologia 4: 235. 1912.

Pileus regular, convex to subexpanded, solitary, 4 cm. broad; surface dry, shining, innate-fibrillose, radiate-rimose, smooth and glabrous at the center, castaneous, blackish-tinged when fresh, assuming a more reddish tint after picking; lamellae free, crowded, slightly ventricose, regular, white when fresh, changing to rose-colored on drying or when bruised; spores ellipsoid, smooth, hyaline, 7–8 × 3–3.5 μ; stipe equal, compressed, very long because buried in leaves, hollow, smooth, glabrous, avellaneous-isabelline, white at the apex, 17 cm. long, 5 mm. thick; annulus superior, slight, fixed, fuliginous.

TYPE LOCALITY: La Honda, California.
HABITAT: In humus in a redwood forest.
DISTRIBUTION: Known only from the type locality.

40. **Lepiota jamaicensis** Murrill, Mycologia 3: 87. 1911.

Pileus 10 cm. in diameter, convex to plane, with a prominent, hemispheric umbo, cespitose on dead wood, the entire sporophore becoming reddish-brown when bruised or on drying; surface dry, white or very pale yellowish, adorned with brownish, floccose scales 1 mm. broad, the remains of the cuticle; umbo brown, minutely scaly; context thin, white; lamellae free, white, becoming discolored when the spores mature; spores ovoid, rounded at both ends, not apiculate, often uninucleate, very pale brown, 9 × 6–7 μ; stipe enlarged at the base, tapering upward, 10 cm. or more long, 1.7 cm. thick below, 0.7 cm. thick above, subglabrous, slightly reddish-brown; annulus large, superior, movable, reddish-brown.

TYPE LOCALITY: Manchioneal, Jamaica.
HABITAT: On a hardwood stump in a cocoanut plantation.
DISTRIBUTION: Known only from the type locality.

41. **Lepiota americana** Peck, Ann. Rep. N. Y. State Mus. 49: 56. 1897.

Agaricus americanus Peck, Ann. Rep. N. Y. State Cab. 23: 71. 1872.

Pileus fleshy, ovoid to campanulate and expanded, umbonate, solitary or subcespitose, 5–10 cm. or more broad; surface radiate-fibrillose beneath the cuticle and at first white, the cuticle brick-colored or bay-brown, at first continuous, soon breaking up except upon the umbo into small scales, which are gradually drawn apart and scattered over the surface, substriate on the margin; context thin, white, changing to dull-red or smoky-red when bruised or on drying; lamellae rather narrow, close, free, white; spores ovoid or subellipsoid, uniguttulate, subhyaline, 7.5–10 × 5–7 μ; stipe tapering upward from the more or less thickened and elongate base, fistulose, smooth, subglabrous, white, changing to red when bruised, 8–12 cm. or more long, 4–6 mm. thick at the apex, 8–12 mm. thick at the base; annulus thin, membranous.

TYPE LOCALITY: Buffalo, New York.
HABITAT: Rich soil in grassy grounds or around old stumps, or on compost heaps.
DISTRIBUTION: New Brunswick to Alabama and west to Iowa.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. 49: *pl. 44, f. 6–10;* Atk. Stud. Am. Fungi *f. 82;* McIlv. Am. Fungi *pl. 15a;* Mycologia 3: *pl. 49, f. 6.*

42. **Lepiota arenicola** Peck, Ann. Rep. N. Y. State Mus. 40: 59. 1887.

Pileus broadly conic to subplane, 6–12 mm. broad; surface white or cinereous, granulose and obscurely punctate-squamulose, margin substriate, crenulate; lamellae distant, subventricose, white; spores oblong, subfusoid, acute at the base, smooth, hyaline, 12–15 × 5–6 μ; stipe equal, glabrous, whitish, stuffed, 1.5–2.5 cm. long, 5 mm. thick; annulus imperfect, nearly obsolete.

TYPE LOCALITY: New York.
HABITAT: In sandy ground.
DISTRIBUTION: New York.

43. **Lepiota subnivosa** Murrill, Mycologia 4: 231. 1912.

Pileus thin, convex to plane, umbonate, solitary, 1.5–3 cm. broad; surface dry, smooth, somewhat striate at times, slightly innate-fibrillose, with a few scattered floccose scales, snow-white throughout or rose-tinted on the umbo; lamellae free, narrow, not crowded, white; spores ellipsoid, smooth, hyaline, uniguttulate, 7–8 × 3.5 μ; stipe thicker below, slender, glabrous, hollow, white, 5–9 cm. long, 2–4 mm. thick; annulus superior, white, fixed, rarely ample and persistent, usually breaking up and vanishing, especially in small plants.

TYPE LOCALITY: Seattle, Washington.
HABITAT: On banks in deep woods.
DISTRIBUTION: Washington.

44. **Lepiota mutata** Peck, Bull. Torrey Club 23: 411. 1896.

Pileus thin, convex, subumbonate, 2.5–4 cm. broad; surface slightly scabrous on the disk, white, changing to brown on the disk in drying; lamellae thin, free, white, crowded, subventricose; spores ellipsoid, smooth, hyaline, 7.5–10 × 5–6 μ; stipe slender, equal, white, hollow, about 2.5 cm. long, 2–4 mm. thick; annulus slight, sometimes evanescent.

TYPE LOCALITY: Kansas.
HABITAT: On the ground in woods.
DISTRIBUTION: Kansas.

45. **Lepiota alluviina** (Peck) Morgan, Jour. Myc. 12: 243. 1906.

Agaricus alluviinus Peck, Ann. Rep. N. Y. State Mus. 35: 157. 1884.

Pileus thin, convex or plane, sometimes reflexed on the margin, 1.2–2.5 cm. broad; surface white, adorned with minute, pale-yellow, hairy or fibrillose scales, both surface and covering becoming deeper yellow on drying; lamellae free, thin, crowded, white or yellowish; spores ellipsoid, smooth, hyaline, 6–8 × 4–5 μ; stipe slender, slightly thickened at the base, whitish or pallid, fibrillose, 2.5–5 cm. long, 2–3 mm. thick; annulus usually remote, sometimes below the middle of the stipe, slight, subpersistent.

TYPE LOCALITY: Albany, New York.
HABITAT: Alluvial soil among weeds.
DISTRIBUTION: Known only from the type locality.

46. **Lepiota subflavescens** Murrill, sp. nov.

Pileus thin, expanded or somewhat depressed, 2 cm. broad; surface bright-lemon-yellow, not striate, appressed-squamulose, the cuticle entire on the disk, margin thin, entire, concolorous; context very thin, white; lamellae free, broad, crowded, white; spores ellipsoid, appendiculate, smooth, hyaline, 6–7 × 3–4 μ; stipe equal except at the bulbous base, solid, pale-yellow, glabrescent, 3 cm. long, 2 mm. thick; annulus ample, persistent, median, yellow.

Type collected on the ground in moist woods in City Park, New Orleans, Louisiana, September 6, 1908, *F. S. Earle 76*.
DISTRIBUTION: Known only from the type locality.

47. **Lepiota fulvastra** (Berk. & Curt.) Sacc. Syll. Fung. 5: 51. 1887.

Agaricus (Lepiota) fulvaster Berk. & Curt. Ann. Nat. Hist. II. 12: 419. 1853.

Pileus plano-convex, gregarious, 6–13 mm. broad; surface white with fulvous scales, the margin striate-sulcate and plicate, often splitting over the lamellae, which are distant, white, thick, attached to a collar; spores ovoid or ellipsoid, smooth, hyaline, 5 × 3.5 μ; stipe slender, glabrous above the annulus, fibrous-spongy within, 2.5 cm. long, 1 mm. thick; annulus fulvous.

TYPE LOCALITY: North Carolina.
HABITAT: Sandy grass plots.
DISTRIBUTION: Southeastern United States.
EXSICCATI: Rav. Fungi Am. *402*.

48. **Lepiota mississippiensis** Murrill, sp. nov.

Pileus rather thin, campanulate to expanded, umbonate, scattered, 1–2 cm. broad; surface dry, pale-yellow, densely covered with cinnamon-colored scales, not changing on drying, faintly

striate near the margin; lamellae free, crowded, ventricose, white, subfulvous on drying; spores subfusiform, appendiculate, smooth, hyaline, $12–13 \times 6–7\ \mu$; stipe slender, cylindric, slightly enlarged at the base, pale-isabelline, sometimes becoming reddish-brown on drying, densely fibrillose above, hollow, 2.5–4 cm. long, 1–2 mm. thick; veil very slight, evanescent, remaining in shreds on margin and stipe.

Type collected on the ground in moist, mixed woods at Ocean Springs, Mississippi, September 5, 1904, *Mrs. F. S. Earle 110*.
DISTRIBUTION: Known only from the type locality.

49. **Lepiota repanda** (Clem.) Sacc. Syll. Fung. **14**: 66. 1899.

Mastocephalus repandus Clem. Bot. Surv. Neb. **4**: 18. 1896.

Pileus fleshy, convex-repand with distinct umbo, 1.3–1.8 cm. broad; surface incarnate-ochraceous, covered with minute, crowded, granular scales; lamellae free, ventricose, white; spores ellipsoid or globose, smooth, hyaline, $5–7 \times 5\ \mu$; stipe slender, equal, minutely floccose-farinose, white above, pinkish-ochraceous below, hollow, 2–3 cm. long, 1–1.5 mm. thick; annulus superior, white.

TYPE LOCALITY: Lincoln, Nebraska.
HABITAT: On rich earth.
DISTRIBUTION: Known only from the type locality.

50. **Lepiota maculans** Peck, Bull. Torrey Club **32**: 77. 1905.

Pileus thin, convex, subumbonate, 1.5–2 cm. broad; surface dry, minutely and densely squamulose, reddish-yellow, darker at the center; context changing to red when wounded; lamellae free, subdistant, broad, white, gradually changing to red or pink; spores ellipsoid, pointed at the ends, uninucleate, smooth, hyaline, $8–12 \times 5–6\ \mu$; stipe tough, equal, whitish or yellowish, floccose or fibrillose, hollow, becoming reddish within when wounded, 5 cm. long, 2–3 mm. thick; annulus slight, evanescent.

TYPE LOCALITY: St. Louis, Missouri.
DISTRIBUTION: Known only from the type locality.

51. **Lepiota amanitiformis** Murrill, sp. nov.

Pileus convex to expanded, not bulbous, rather firm, rigid when dry, irregular at times with age, gregarious, 3–4 cm. broad; surface dry, reddish-brown, slightly darker at the center, at length cracking into minute scales, especially near the margin, and showing a white, unchanging context between the scales, margin slightly paler, entire, not inflexed on drying; lamellae crowded, white, unchanging, of medium breadth, free, somewhat ventricose, spores oblong-ellipsoid, obliquely apiculate, smooth, hyaline, $7–8 \times 4–5\ \mu$; stipe very short and thick, usually tapering upward from an abrupt, globose bulb at the base, white or tinged with reddish-brown, solid, subglabrous to slightly fibrillose, 2–3 cm. long, 4–8 mm. thick, the bulb reaching 1 cm.; annulus inferior, rather slight, white, usually connected with the bulb by fibrils.

Type collected in rich soil in the conservatories of the New York Botanical Garden, October 1, 1910, *W. A. Murrill*.
DISTRIBUTION: Known only from the type locality.

52. **Lepiota abruptibulba** Murrill, Mycologia **3**: 88. 1911.

Pileus fleshy, rather thin, 6–7 cm. broad, hemispheric to subexpanded, at first umbonate, at length obtuse; surface rich-reddish-brown, the cuticle breaking into minute, floccose-granular scales, not striate, darker on the umbo; lamellae white, free, crowded, unequal, rather broad; spores subglobose to ovoid, smooth, hyaline, tinged with brown, $5–5.5 \times 4\ \mu$; stipe cylindric, subglabrous, tinged with reddish-brown, hollow, 7 cm. long, 6 mm. thick, the base swollen into an abrupt, flattened bulb; annulus large, persistent, superior, movable.

TYPE LOCALITY: Santiago de las Vegas, Cuba.
HABITAT: On the ground in banana fields and thickets.
DISTRIBUTION: Cuba.

53. **Lepiota rubrotincta** Peck, Ann. Rep. N. Y. State Mus. **44**: 179. 1892.

Agaricus rubrotinctus Peck, Ann. Rep. N. Y. State Mus. **35**: 155. 1884.
Mastocephalus carneo-annulatus Clem. Bot. Survey Neb. **4**: 17. 1896.

Pileus thin, convex to subplane, usually umbonate, 2–8 cm. broad; surface light-red to purple, the cuticle at first continuous, later cracking radially except on the umbo and sometimes finally breaking up into appressed scales; lamellae free, close, broad, rounded, white or slightly tinged with yellow; spores ellipsoid, smooth, hyaline, appendiculate, uniguttulate, 7–12×3–6 μ; stipe equal, slightly enlarged at the base, white or with a rosy tint, glabrous or silky-fibrillose, hollow, 3–9 cm. long, 4–6 mm. thick; annulus membranous, usually persistent, entirely white or with a pink margin.

TYPE LOCALITY: New York.
HABITAT: Among leaves in thin woods or the borders of woods.
DISTRIBUTION: New England to Nebraska and south to the Gulf of Mexico.

54. **Lepiota incarnata** (Clem.) Sacc. Syll. Fung. **14**: 65. 1899.

Mastocephalus incarnatus Clem. Bot. Surv. Neb. **4**: 17. 1896.

Pileus thin, slightly fleshy, conic to campanulate, with distinct umbo, rarely convex, subcespitose, 2–4 cm. broad, 1.5–3 cm. high; surface slightly silky, pale-incarnate with darker scales, umbo becoming black, margin striate; lamellae remote, subdistant, nearly plane, white; spores ovoid-ellipsoid, smooth, hyaline, uninucleate, apiculate at one end, 5–6×3 μ; stipe slender, equal, glabrous, rarely silky, pallid or somewhat rosy, stuffed, 3–6 cm. long, 2–5 mm. thick; annulus median or superior, fixed, erect, white.

TYPE LOCALITY: Wabash, Nebraska.
HABITAT: On the ground among leaves in woods.
DISTRIBUTION: Known only from the type locality.

55. **Lepiota roseilivida** Murrill, Mycologia **4**: 234. 1912.

Pileus convex to expanded, thin, umbonate, gregarious, 2.5–4 cm. broad; surface dry, minutely and densely fibrillose-scaly, rose-lilac, livid in the center, becoming slightly darker on drying; lamellae white, unchanging, free, crowded, narrow; spores ellipsoid, smooth, hyaline, 8–9×4–5 μ; stipe slender, tapering upward, subglabrous, white or pallid, changing to lilac on drying, hollow, 7–10 cm. long, 2–5 mm. thick; annulus superior, movable, ample, membranous, lilac-tinted, becoming lilac on drying.

TYPE LOCALITY: Muir Woods, California.
HABITAT: On the ground.
DISTRIBUTION: Known only from the type locality.

56. **Lepiota rubrotinctoides** Murrill, Mycologia **4**: 236. 1912.

Pileus convex to nearly plane, often umbonate, sometimes depressed in old plants, solitary or gregarious, 4–7 cm. broad; surface dry, subglabrous, white with rosy tints to red or purplish, the center always darker, varying from pink or red to dark-purple or blackish, cuticle even and unbroken when young, splitting radially, especially on the margin, as the pileus expands; context thin, white, drying soft and flexible; lamellae free, narrow, close, plane, white, the edges minutely serrulate; spores subovoid, smooth, hyaline, with a large, clear nucleus 7×3.5 μ; stipe long and slender, equal or slightly tapering upward, hollow, glabrous or somewhat fibrillose, white, 10–15×0.5–1 cm.; annulus superior, fixed, membranous, ample, white, persistent.

TYPE LOCALITY: Seattle, Washington.
HABITAT: On the ground in woods.
DISTRIBUTION: Washington, Oregon, California.

57. **Lepiota conspurcata** (Willd.) Morgan, Jour. Myc. **12**: 243. 1906.

Agaricus conspurcatus Willd. Prodr. Fl. Berl. 382. 1787.
Agaricus cristatus Bolt. Hist. Fung. Halifax **1**: 7. 1788. Not *A. cristatus* Scop. 1772.

Agaricus subantiquatus Batsch, Elench. Fung. **2**: 59. 1789.
Agaricus cristatus Fries, Syst. Myc. **1**: 22. 1821.
Lepiota cristata Quél. Champ. Jura Vosg. 34. 1872.
Lepiota angustana Britz. Ber. Nat. Ver. Augsb. **27**: 185. 1883.
Agaricus miamensis Morgan, Jour. Cinc. Soc. Nat. Hist. **6**: 63. 1883.
Lepiota castaneidisca Murrill, Mycologia **4**: 232. 1912.

Pileus fleshy, subovoid to convex and expanded, 1.5–4 cm. broad; surface radiate-fibrillose, white beneath the rufous cuticle, which is soon drawn apart into small concentric scales; context thin, white, subrufescent, odor and taste often unpleasant; lamellae rather broad, close, obtuse behind, free, white; spores variable, pointed at one end and obtuse or truncate at the other, $5–8 \times 3–4\ \mu$; stipe slender, tapering slightly upward, fistulose, rufescent beneath the white-fibrillose cuticle, 3–5 cm. long, 2–5 mm. thick; annulus membranous, lacerate, subpersistent.

TYPE LOCALITY: Germany.
HABITAT: Gardens, fields, and woods.
DISTRIBUTION: Throughout temperate North America; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 29* (*31*); Atk. Stud. Am. Fungi *f. 83;* Gill. Champ. Fr. *pl. 417;* Hussey, Ill. Brit. Myc. **1**: *pl. 48;* Jour. Cinc. Soc. Nat. Hist. **6**: *pl. 3.*
EXSICCATI: Karst. Finl. Fungi *701;* Sydow, Myc. Mar. *2603;* Herpell, Präp. Hutpilze *58.*

58. **Lepiota Sequoiarum** Murrill, Mycologia **4**: 233. 1912.

Pileus thin, convex to nearly plane, umbonate, gregarious, 2–4 cm. broad; surface dry, finely imbricate-fibrillose-scaly, white, the center more densely fibrillose and tinged with isabelline, the remainder of the surface being at times tinged with the same color in the scales; context loosely woven, thin, white; lamellae white, free, close, narrow; spores ovoid to ellipsoid, smooth, hyaline, $7–9 \times 3.5–4\ \mu$; stipe tapering upward, long, slender, white, smooth, glabrous, hollow, reaching 10 cm. long and 5 mm. thick; annulus superior, white, not fixed but collapsed on the stipe, persistent.

TYPE LOCALITY: Muir Woods, California.
HABITAT: On the ground.
DISTRIBUTION: Known only from the type locality.

59. **Lepiota amplifolia** Murrill, Mycologia **4**: 233. 1912.

Pileus convex to subexpanded, umbonate, gregarious, reaching 3.5 cm. broad; surface smooth, white, polished, with a few delicate, floccose, isabelline-testaceous scales, the umbo isabelline-testaceous with cuticle subentire; lamellae free, white, not crowded, very broad and triangular; spores oblong-ellipsoid, smooth, hyaline, $8–9 \times 3.5\ \mu$; stipe equal, finely fibrillose, hollow, white, becoming rose-tinted on drying, 7–9 cm. long, 2–4 mm. thick; veil white, evanescent, remaining only in small fragments clinging to the margin and stipe.

TYPE LOCALITY: Glen Brook, Oregon.
HABITAT: On the ground in a dense fir forest.
DISTRIBUTION: Known only from the type locality.

60. **Lepiota subcristata** Murrill, Mycologia **3**: 83. 1911.

Pileus convex, umbonate, solitary, 7.5 mm. broad, 5 mm. high; surface floccose, pale-isabelline, with dark-avellaneous, imbricate scales, the umbo smooth, purplish-fuliginous; lamellae free, white; spores ellipsoid, smooth, hyaline, $5 \times 3\ \mu$; stipe slender, equal, glabrous, purplish-fuliginous, 1.5 cm. long, 1 mm. or less thick; annulus slight, evanescent.

TYPE LOCALITY: Moore Town, Jamaica.
HABITAT: On rotten wood.
DISTRIBUTION: Jamaica and Grenada.

61. **Lepiota subgrisea** Murrill, Mycologia **3**: 84. 1911.

Pileus small, convex to expanded, slightly umbonate, gregarious, 1–1.5 cm. broad; surface avellaneous, adorned with imbricate scales arranged in a somewhat radiate manner from the glabrous, fuliginous umbo; lamellae free, white, of medium breadth and distance; spores

ellipsoid, smooth, hyaline, uninucleate, apiculate, 7×3.5–4 μ; stipe white, glabrous, slightly tapering upward, 1.5 cm. long, 1–2 mm. thick; annulus slight, evanescent.

TYPE LOCALITY: Port Antonio, Jamaica.
HABITAT: In low ground near the coast.
DISTRIBUTION: Jamaica.

62. **Lepiota phaeosticta** Morgan, Jour. Myc. 12: 248. 1906.

Pileus fleshy, subovoid with a blunt apex to expanded, subcespitose, 1–1.5 cm. broad; surface radiate-fibrillose, the cuticle soon separating into very minute, dark scales, which are visible as small black points on the white surface; context very thin, white; lamellae close, white, tapering behind, free and rather remote; spores oblong-ellipsoid, obliquely apiculate, 5–6×3–3.5 μ; stipe tapering upward from the clavate base, white, solid, glabrous, 1.5–2 cm. long, 1–2 mm. thick; annulus membranous, persistent.

TYPE LOCALITY: Preston, Ohio.
HABITAT: Rotten logs in woods.
DISTRIBUTION: Known only from the type locality.

63. **Lepiota Cultorum** (Berk. & Curt.) Sacc. Syll. Fung. 5: 35. 1887.

Agaricus (Lepiota) Cultorum Berk. & Curt. Ann. Mag. Nat. Hist. II. 12: 418. 1853.

Pileus hemispheric, umbonate, 2.5 cm. broad; surface rough with brown, granular scales; lamellae remote, broad, ventricose; spores cymbiform, acute at the ends, smooth, hyaline, 10 μ long; stipe short, furfuraceous, 1.3–2.5 cm. long, 2 mm. thick.

TYPE LOCALITY: South Carolina.
HABITAT: Among squashes in a garden and in other cultivated grounds.
DISTRIBUTION: South Carolina and North Carolina.

64. **Lepiota avellanea** Clem. Bot. Surv. Neb. 2: 41. 1903.

Pileus fleshy, plane, 5 cm. broad; surface dry, avellaneous, the cuticle lacerate, with appressed, brown scales toward the margin; lamellae remote, attached to an indistinct collar, cream-colored, reddish; spores irregularly ovoid, acute at one end, smooth, hyaline, 8–10× 5–6 μ; stipe bulbous, brownish-fibrillose, somewhat hollow, 4 cm. long, 8 mm. thick; annulus small, inferior, concolorous.

TYPE LOCALITY: Lincoln, Nebraska.
HABITAT: On soil in a greenhouse.
DISTRIBUTION: Known only from the type locality.

65. **Lepiota muticolor** Murrill, sp. nov.

Pileus campanulate to expanded, strongly umbonate, gregarious, 2.5–4 cm. broad; surface dry, dark-brown on the umbo, the remainder white, changing to rosy-isabelline on drying, decorated with numerous, small, brownish, fibrillose scales, margin slightly striate; lamellae free, crowded, somewhat ventricose, white changing to fulvous on drying; spores ellipsoid, becoming yellowish-brown, smooth, 8–9×6–7 μ; stipe cylindric above, subbulbous at the base, rather tough, subglabrous, white changing to reddish-umbrinous on drying, 3–5 cm. long, about 3 mm. thick; annulus median, fixed, ample, sometimes deciduous, white with a brown margin.

Type collected on a hickory log in "Palmetto Swamp" near Auburn, Alabama, September 1, 1899, *F. S. Earle*.
DISTRIBUTION: Known only from the type locality.

66. **Lepiota tepeitensis** Murrill, Mycologia 3: 82. 1911.

Pileus convex to expanded, slightly umbonate, 3 cm. in diameter; surface white, uneven, fuliginous at the center, adorned with fuliginous, imbricate scales, the remains of the cuticle; lamellae free, white, broad, rather crowded; spores ellipsoid, smooth, pure-hyaline, usually

uninucleate, $7 \times 4\ \mu$; stipe white, glabrous, tapering upward, 4 cm. long, 3 mm. thick; annulus slight, evanescent.

TYPE LOCALITY: Tepeite River, near Cuernavaca, Mexico.
HABITAT: In humus in a moist virgin forest.
DISTRIBUTION: Known only from the type locality.

67. **Lepiota hortensis** Murrill, sp. nov.

Pileus strongly convex then expanded, very slightly umbonate, gregarious, reaching 8–10 cm. broad; surface dry, fibrillose, dirty-yellowish-white, unchanging, light-brown on the disk, decorated with rather large, light-brown, floccose scales somewhat concentrically arranged; margin rather thick and rounded, concolorous, distinctly striate; lamellae white, unchanging, free, crowded, somewhat ventricose; spores ellipsoid, smooth, hyaline, $8–9 \times 6–7\ \mu$; stipe short, rather tough, solid, subequal, at times slightly enlarged below the annulus but rarely bulbous, white and glabrous above the annulus, brownish and usually fibrillose below, 5–7 cm. long, 7–10 mm. thick; annulus median or inferior, convex, ample, brownish.

Type collected in sandy soil in a garden in Auburn, Alabama, September 2, 1899, *Mrs. F. S. Earle.*
DISTRIBUTION: Alabama.

68. **Lepiota dryophila** Murrill, sp. nov.

Pileus fleshy, fragile, convex to expanded, slightly umbonate, the umbo more distinct in dried specimens, 5–8 cm. broad; surface dry, white with chestnut-brown scales, unchanged on drying, dark-chestnut-brown on the umbo, margin white, faintly short-striate; context white, unchanging, taste mild; lamellae free, crowded, rather narrow, white, unchanging; spores broadly ellipsoid, smooth, hyaline, granular, $8–9 \times 7–8\ \mu$; stipe equal, often curved, not at all bulbous, floccose-scaly and white above the annulus, brownish and subglabrous below, solid, 5–8 cm. long, 6–10 mm. thick; annulus median, brownish, fragile.

Type collected on an oak log near New Orleans, Louisiana, September 8, 1908, *F. S. Earle 120.*
DISTRIBUTION: Known only from the type locality.

69. **Lepiota Glatfelteri** Peck, Bull. Torrey Club **31**: 177. 1904.

Pileus thin, convex or nearly plane, obtuse or slightly umbonate, 2.5–5 cm. broad; surface slightly and innately fibrillose, sometimes radiate-rimose on the margin, gray, grayish-brown, or brown, tinged with purple at times, the center usually darker; context white; lamellae free, white or whitish, crowded, lanceolate; spores broadly ellipsoid, smooth, hyaline, $6–8 \times 4–5\ \mu$; stipe equal or nearly so, firm, white, stuffed or hollow, 4–5 cm. long, 2–4 mm. thick; annulus slight, persistent.

TYPE LOCALITY: St. Louis, Missouri.
HABITAT: On the ground in woods.
DISTRIBUTION: Known only from the type locality.

70. **Lepiota felinoides** Peck, Bull. Torrey Club **27**: 610. 1900.

Pileus thin, convex, subumbonate, 2.5–6 cm. broad; surface purplish-brown or blackish-brown, often darker in the center, becoming squamose by the rupturing of the cuticle; context white; lamellae thin, free, crowded, white; spores ellipsoid-ovoid, smooth, hyaline, $6–8 \times 4–5\ \mu$; stipe slender, slightly enlarged at the base, white, silky-fibrillose, hollow, 5–8 cm. long, 2–4 mm. thick; annulus membranous, persistent, white.

TYPE LOCALITY: St. Louis, Missouri.
HABITAT: Low shaded ground under vines in woods.
DISTRIBUTION: Known only from the type locality.

71. **Lepiota geniculospora** Atk. Ann. Myc. **7**: 372. 1909.

Pileus convex to subexpanded, slightly umbonate, reaching 1.5 cm. broad; surface brown, silky, chestnut-brown at the center, the cuticle cracking concentrically into numerous appressed chestnut-brown scales; context light-yellowish-brown after exposure; lamellae white, ventri-

cose, slightly eroded, becoming brownish on drying; spores subellipsoid, obliquely appendiculate, smooth, hyaline, 12–15 × 5–6 μ; stipe pale-brown, adorned with floccose, chestnut-brown scales below the point of attachment of the veil to the stipe, about 4 cm. long and 2.5 mm. thick.

TYPE LOCALITY: Ithaca, New York.
HABITAT: On the ground in low woods.
DISTRIBUTION: New York.

72. **Lepiota acerina** Peck, Ann. Rep. N. Y. State Mus. **51**: 283. 1898.

Pileus convex, subumbonate, 1.5–2.5 cm. broad; surface dry, floccose-squamulose, pale-tawny or subalutaceous, brownish on the umbo; lamellae free, crowded, thin, pallid, pruinose when dry; spores oblong or narrowly ellipsoid, very blunt or subtruncate at one end, smooth, hyaline, 8–11 × 4–5 μ; stipe equal, concolorous, floccose-squamulose below, stuffed or hollow, 2.5–4 cm. long, 4 mm. thick; annulus obsolete.

TYPE LOCALITY: North Elba, New York.
HABITAT: Prostrate mossy trunks of sugar maple.
DISTRIBUTION: Known only from the type locality.

73. **Lepiota sublilacea** Peck, Bull. Torrey Club **24**: 139. 1897.

Pileus thin, convex, obtuse or umbonate, 1.2–2.5 cm. broad; surface dry, floccose-squamulose, brownish tinged with lilac; context white; lamellae free, subdistant, rather broad, whitish; spores oblong-ellipsoid, smooth, hyaline, usually uninucleate, 10 × 5 μ; stipe short, concolorous below, paler at the apex, solid, 1.2–2.5 cm. long, 2–4 mm. thick; annulus slight, evanescent.

TYPE LOCALITY: Kansas.
HABITAT: On bare ground in pastures.
DISTRIBUTION: Known only from the type locality.

74. **Lepiota floralis** (Berk. & Rav.) Sacc. Syll. Fung. **5**: 51. 1887.

Agaricus (*Lepiota*) *floralis* Berk. & Rav. Ann. Mag. Nat. Hist. II. **12**: 418. 1853.

Pileus becoming plane, 1.3–2 cm. broad; surface adorned with brown, floccose scales, margin striate; lamellae free, distant, thin, ventricose, white; spores oblong, smooth, hyaline; 10–13 × 4–5 μ; stipe slender, attenuate below, concolorous, 0.5–2.5 cm. long, 1 mm. thick, annulus membranous, persistent.

TYPE LOCALITY: South Carolina.
HABITAT: Cultivated grounds.
DISTRIBUTION: New Jersey, North Carolina, and South Carolina.
EXSICCATI: Rav. Fungi Am. *401;* Ellis & Ev. N. Am. Fungi. *2002.*

75. **Lepiota gracilis** Peck, Bull. Torrey Club **26**: 63. 1899.

Pileus thin, convex or bell-shaped, somewhat umbonate, 0.5–1 cm. broad; surface white, the center and the scales formed from the rupturing cuticle blackish-brown; lamellae free, ventricose, crowded, whitish; spores broadly ellipsoid, 6–7 × 4 μ; stipe long, slender, floccose or fibrillose, blackish-brown, 2.5 cm. long, scarcely more than 1 mm. thick; annulus membranous, persistent, conspicuous, blackish-brown on the lower surface.

TYPE LOCALITY: Elmsdale, Canada.
HABITAT: Black humus in woods.
DISTRIBUTION: Canada and Michigan.

76. **Lepiota subfelina** Murrill, Mycologia **4**: 234. 1912.

Pileus thin, convex to expanded, distinctly umbonate, solitary, about 2 cm. broad; surface dry, white, densely covered with small, latericious, imbricate scales, the umbo bay, with strigose-tomentose covering; lamellae free, rather broad, plane, close, white; spores oblong-ellipsoid, smooth, hyaline, 8 × 4 μ; stipe very slender, slightly tapering upward, white and finely fibrillose above, avellaneous with a rosy tint below, and decorated with latericious fragments

resembling the scales on the pileus, 4 cm. long, 2–2.5 mm. thick; veil obsolete, not forming an annulus.

TYPE LOCALITY: Seattle, Washington.
HABITAT: On the ground in woods.
DISTRIBUTION: Washington.

77. **Lepiota umbrosa** Morgan, Jour. Myc. **12**: 199. 1906.

Pileus fleshy, ovoid to campanulate and expanded, subumbonate, 1.5–2.5 cm. broad; surface radiate-fibrillose, white beneath the cuticle, which is tawny-brown, darker in the center, at maturity slightly parted into minute scales, the fibers on the umbo often acutely convergent; context thin, white; lamellae rather narrow, close, white, rounded behind, free, approximate; spores oblong-ellipsoid, obliquely apiculate, $5–6 \times 3\ \mu$; stipe subequal above the bulb, fistulose, fibrous-stuffed, white and smooth above the annulus, floccose-fibrillose and rufescent below, with scattered tawny scales, 4–5 cm. long, 2–4 mm. thick; veil flocculose, partly appendiculate.

TYPE LOCALITY: Preston, Ohio.
HABITAT: On the ground in woods.
DISTRIBUTION: Known only from the type locality.

78. **Lepiota pelidna** (Berk. & Mont.) Sacc. Syll. Fung. **5**: 67. 1887.

Agaricus (Lepiota) pelidnus Berk. & Mont.; Mont. Syll. Crypt. 97. 1856.

Pileus fleshy, ovoid to convex-hemispheric, 7–9 cm. broad; surface furfuraceous, rugose, livid or greenish-livid, margin appendiculate; lamellae adnexed, rather narrow, white then reddish, with pallid edges; spores subglobose, smooth, hyaline, 10 μ long; stipe bulbous, concolorous, furfuraceous-scaly, solid, 11–15 cm. long, 1.5–2 cm. thick, the bulb 3–4 cm. thick; annulus apical, concolorous, lacerate.

TYPE LOCALITY: Columbus, Ohio.
HABITAT: On logs.
DISTRIBUTION: Known only from the type locality.

79. **Lepiota caloceps** Atk. Jour. Myc. **8**: 115. 1902.

Pileus fleshy, firm, ovoid to convex or expanded, sometimes broadly gibbous, gregarious, 4–8 cm. broad, 3–4 mm. thick; surface wood-brown to tawny-olive when young, often yellowish toward the margin, cracking areolately, showing the white context; lamellae firm, free, angular behind, crowded, dingy-white, 3–4 mm. broad, eroded on the edges; spores narrowly ellipsoid, obliquely truncate at the base, smooth, hyaline, granular, $6–8 \times 2.5–3\ \mu$; stipe fleshy, cylindric, somewhat bulbous, adorned with patches of the universal veil colored like the pileus, white above, dull-flesh-colored below, both without and within, hollow, 6–10 cm. long, 6–10 mm. thick.

TYPE LOCALITY: Ithaca, New York.
HABITAT: Moist woods in a ravine.
DISTRIBUTION: Known only from the type locality.

80. **Lepiota spanista** Morgan, Jour. Myc. **12**: 198. 1906.

Pileus fleshy, ovoid to campanulate and expanded, subumbonate, 3–5 cm. broad; surface radiate-fibrillose, at first continuous, alutaceous to pale-umber, the cuticle at length separating into appressed scales; context thin, white; lamellae rather broad, close, white, approximate; spores oblong-ellipsoid, $8–10 \times 5–6\ \mu$; stipe tapering upward from the thickened base, fistulose fibrous-stuffed, squamulose below the annulus and concolorous, 4–6 cm. long, 5–8 mm. thick; veil lacerate, appendiculate.

TYPE LOCALITY: Preston, Ohio.
HABITAT: On rotten wood in woods.
DISTRIBUTION: Known only from the type locality.

81. **Lepiota clypeolaria** (Bull.) Quél. Champ. Jura Vosg. 34. 1872.

Agaricus clypeolarius Bull. Herb. Fr. *pl. 405*. 1788.
Lepiota magnispora Murrill, Mycologia 4: 237. 1912.

Pileus thin, fleshy, ovoid to campanulate and expanded, subumbonate, solitary or rarely gregarious, 3–7 cm. broad; surface radiate-fibrillose, white or yellowish beneath the cuticle, which is thin, at first continuous and fulvous or rufous, soon broken up except in the center and drawn apart into small scales; margin appendiculate with fragments of the veil; context thin, white; lamellae rather broad, rather crowded, free, white or yellowish; spores oblong-fusiform, smooth, hyaline, 12–20×4–7 μ; stipe tapering upward from the slightly thickened base, fistulose, fibrous-stuffed, conspicuously fibrous-floccose below the annulus and white or yellowish, silky at the apex, 5–9 cm. long, 3–8 mm. thick; veil cottony, ample, ochraceous-isabelline, usually not forming an annulus but adhering to the margin and stipe.

TYPE LOCALITY: France.
HABITAT: Woods, especially in hilly and mountainous regions.
DISTRIBUTION: Maine to Alabama and west to Oregon; also in Europe.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. 54: *pl. 76, f. 1–7;* Bull. Herb. Fr. *pl. 405;* Barla, Champ. Nice *pl. 13;* Fries, Ic. Hymen. *pl. 14;* Gill. Champ. Fr. *pl. 40* (*416*); Sow. Engl. Fungi *pl. 14.*
EXSICCATI: Sydow, Myc. Mar. *617.*

82. **Lepiota nardosmioides** Murrill, Mycologia 4: 238. 1912.

Pileus thick, fleshy, convex, slow to expand, 6 cm. broad in its unexpanded form, resembling that of *Armillaria nardosmia* in form and color; surface dry, fibrillose, castaneous, becoming somewhat mottled with lighter and darker areas, margin strongly incurved; lamellae free, crowded, broad, ventricose, pallid; spores ovoid to ellipsoid, smooth, hyaline with an umbrinous tint, 5–7×3.5–4 μ; stipe short, 2.5 cm. thick, bulbous, white, glabrous above and cottony below the large, membranous, simple, white, persistent annulus, which is fixed above the center of the stipe and is decidedly cottony on its lower surface.

TYPE LOCALITY: La Honda, California.
HABITAT: On humus in a redwood forest.
DISTRIBUTION: Known only from the type locality.

V. **Acutesquamosae.** Pileus decorated with prominent reflexed or pointed scales.

83. **Lepiota scabrivelata** Murrill, sp. nov.

Pileus rather fleshy, convex to expanded, gregarious, 2–3 cm. broad; surface dry, subochraceous, densely covered with rigid, pyramidal, concolorous scales, 1–2 mm. long and 1 mm. broad at the base; lamellae free, crowded, broad, white; spores ellipsoid, smooth, hyaline, 4×2–2.5 μ; stipe cylindric, not enlarged below, dry, hollow, coated like the pileus with pyramidal, yellow scales, which are smaller and partly disappear with age, 4–5 cm. long, 4–5 mm. thick; veil ample, thickly beset with yellow, pyramidal scales similar to those on the stipe, not forming a distinct persistent annulus.

Type collected on the ground in wet woods in City Park, New Orleans, Louisiana, September 6, 1908, *F. S. Earle 73.*
DISTRIBUTION: Known only from the type locality.

84. **Lepiota hemisclera** (Berk. & Curt.) Sacc. Syll. Fung. 5: 66. 1887.

Agaricus (*Lepiota*) *hemisclerus* Berk. & Curt. Jour. Linn. Soc. 10: 283. 1868.

Pileus convex to plane, 5–7.5 cm. broad; surface glabrous, pale-fuscous to fawn-colored, at times clouded, adorned with conic, black, rigid, wart-like scales, margin projecting; lamellae free, remote, narrow, snow-white; spores narrowly oblong, smooth, hyaline, 11 μ long; stipe enlarged below, glabrous or with a few warts where the edge of the pileus was attached, white above, concolorous below, floccose within, 5 cm. long; annulus ample, reflexed.

TYPE LOCALITY: Cuba.
HABITAT: On logs in woods.
DISTRIBUTION: Cuba.

85. **Lepiota fuscosquamea** (Peck) Sacc. Syll. Fung. 5: 37. 1887.

Agaricus (Lepiota) fuscosquameus Peck, Bull. Buffalo Soc. Nat. Sci. **1**: 41. 1873.
Lepiota concentrica Murrill, Mycologia **4**: 235. 1912.

Pileus rather thick, convex to subexpanded, scarcely umbonate, solitary, 3–5 cm. broad; surface dry, white with yellowish tints between concentric rows of coarse, strigose-floccose, latericious to blackish-brown, raised scales formed from the deeply ruptured cuticle, the unruptured central portion being fuliginous; margin uneven, eroded, bearing fragments of the fugacious white veil; lamellae white, free, rather broad and close; spores ovoid, smooth, hyaline, $6 \times 3.5\ \mu$; stipe tapering upward, decorated with fibrils from the veil, hollow, white above, cremeous to brown and more shaggy below, 7–9 cm. long, 5–15 mm. thick.

TYPE LOCALITY: Croghan, New York.
HABITAT: On the ground in woods.
DISTRIBUTION: Maine to North Carolina and west to Washington.

86. **Lepiota aspera** (Pers.) Quél. Ench. Fung. 5. 1886.

Amanita aspera Pers. Syn. Fung. 256. 1801.
Agaricus acutesquamosus Weinm. Syll. Pl. Nov. **1**: 70. 1822.
Agaricus Friesii Lasch, Linnaea **3**: 155. 1828.
Lepiota asperula Atk. Stud. Am. Fungi 82. 1900.
Lepiota eriophora Peck, Bull. Torrey Club **30**: 95. 1903.

Pileus fleshy, hemispheric to convex and expanded, obtuse, at times depauperate, usually 7–12 cm. broad; surface appressed-tomentose, pale-ferruginous, decorated, especially near the center, with brown, compact, sometimes pointed, wart-like, separable scales; context moderately thick, white or yellowish; lamellae rather narrow, closely crowded, sometimes forked, white or yellowish, tapering behind, free, approximate; spores $5\text{–}10 \times 2\text{–}4\ \mu$; stipe thick, tapering upward from the bulbous base, fistulose or fibrous-stuffed, white and pruinose above the annulus, tomentose or fibrillose-scaly and ferruginous below, usually 8–12 cm. long, 8–12 mm. thick at the apex, and 18–25 mm. at the base; veil usually large, white, membranous, persistent, adherent in places to the margin of the pileus and annulate upon the stipe, at times reduced and fibrillose.

TYPE LOCALITY: Europe.
HABITAT: Rich soil or humus in woods or open places.
DISTRIBUTION: Eastern United States to Alabama and west to Iowa and Washington; also in Europe.
ILLUSTRATIONS: Gill. Champ. Fr. *pl. 33* (*409*), *31* (*421*); Cooke, Brit. Fungi *pl. 14* (*24*), *1105;* Hard, Mushrooms *f. 38;* Hussey, Ill. Brit. Myc. 2: *pl. 5;* Barla, Champ. Nice *pl. 12, f. 4–7;* Bull. Chicago Acad. Sci. **7**: *pl. 2, f. 1;* Atk. Stud. Am. Fungi *f. 84.*

VI. **Procerae.** Pileus large, with large scales; stipe glabrous; annulus movable.

87. **Lepiota procera** (Scop.) S. F. Gray, Nat. Arr. Brit. Pl. 1: 601. 1821.

Agaricus procerus Scop. Fl. Carn. ed. 2. **2**: 418. 1772.

Pileus soft, fleshy, ovoid to expanded, umbonate, solitary or gregarious, 8–16 cm. broad; surface radiate-fibrillose and rufescent beneath the cuticle, the cuticle thick, at first smooth and continuous, rufous to umber in color, at length torn asunder, except upon the umbo, into large irregular scales which become scattered and gradually fall away, margin deflexed, silky-fibrillose; context thick, soft, white; lamellae broad, close, white, at times yellowish or pinkish, tapering slightly behind, free, remote; spores ellipsoid or obovoid, apiculate, 1–2-guttulate, $12\text{–}18 \times 8\text{–}12\ \mu$; stipe tall, tapering upward from the bulbous base, hollow or fibrous-stuffed, the cuticle thin, flocculose, rufous or brownish, at length drawn apart into minute scales, 15–25 cm. long, 8–16 mm. thick, the base 2–3 cm. thick; annulus thick, soft, subcoriaceous, movable, apical.

TYPE LOCALITY: Carniola.
HABITAT: Meadows, pastures, and open woods.
DISTRIBUTION: New England to Alabama and west to Nebraska; also in Europe.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **48**: *pl. 18;* Atk. Stud. Am. Fungi *f. 81;* Barla, Champ. Nice *pl. 9, f. 1–4;* Bull. Herb. Fr. *pl. 78;* Cooke, Brit. Fungi *pl. 21* (*19*); Fries, Sv. Aetl.

Svamp. *pl. 3;* Gibson, Edible Toadst. *pl. 10;* Hussey, Ill. Brit. Myc. 1: *pl. 88;* Krombh. Abbild. *pl. 24, f. 1–12;* McIlv. Am. Fungi *pl. 13;* Schaeff. Fung. Bavar. *pl. 23;* Sow. Engl. Fungi *pl. 190;* Vitt. Descr. Funghi Mang. *pl. 24;* Mycologia 5: *pl. 92, f. 2;* Gill. Champ. Fr. *pl. 30* (*429*).

Exsiccati: Karst. Finl. Fungi *203;* Sydow, Myc. Mar. *301;* Roum. Fungi Gall. *4001;* Thüm. Fungi Austr. *901;* Herpell, Präp. Hutpilze *3*.

88. **Lepiota rhacodes** (Vitt.) Quél. Champ. Jura Vosg. 32. 1872.

Agaricus rhacodes Vitt. Descr. Funghi Mang. 158. 1835.

Pileus fleshy, soft, globose to expanded or depressed, usually cespitose, 7–10 cm. broad; surface dry, smooth, and brown when young, becoming very coarsely scaly except at the center from the breaking up of the cuticle; context white, becoming brownish-orange on exposure; lamellae free, remote, white; spores ovoid-ellipsoid, hyaline, $9–12 \times 7–9\ \mu$; stipe stout, smooth, hollow, white, strongly bulbous at the base, about 8–10 cm. long and 2 cm. thick; annulus ample, fixed, becoming movable, edge of veil double and fringed.

Type locality: Italy.
Habitat: Rich soil in gardens and greenhouses.
Distribution: Massachusetts; also in Europe.
Illustrations: Vitt. Descr. Funghi Mang. *pl. 20;* Hussey, Ill. Brit. Fung. 2: *pl. 38;* Cooke, Brit. Fungi *pl. 22* (*20*); Gill. Champ. Fr. *pl. 27* (*430*).

Doubtful species

Lepiota asprata (Berk.) Sacc. Syll. Fung. 5: 48. 1887. Described from Ceylon, occurring there on the ground; and later described from New Caledonia by Cooke and Massee as *Agaricus* (*Lepiota*) *echinodermatus.* Specimens distributed by Ravenel from South Carolina, occurring on dead branches, have the same general appearance as the Ceylon plants but are probably different.

Lepiota Badhami (Berk.) Sacc. Syll. Fung. 5: 35. 1887. The older mycologists doubtless confused *L. americana* Peck with this species.

Agaricus felinus Pers. Syn. Fung. 261. 1801. A very slender European species much like *L. conspurcata* in form, the surface white with blackish disk and concentric rows of scales. The plants formerly referred to this species in America probably belong to *L. fuscosquamea* Peck.

Agaricus mastoideus Fries, Syst. Myc. 1: 20. 1821. American plants referred to this species by the older mycologists are only forms of *L. cretacea.*

Agaricus meleagris Sow. Engl. Fungi *pl. 171.* 1798. This species has several times been reported from North America, probably having been confused with *L. brunnescens* Peck.

Agaricus metulaesporus Berk. & Br. Described from Ceylon and often confused with *L. clypeolaria,* of which it may be a form.

Agaricus xylogenus Mont. Syll. Crypt. 122. 1856. Described from plants collected by Sullivant near Columbus, Ohio. See note in Mycologia 6: 151. 1914.

49. **CHLOROPHYLLUM** Mass. Kew Bull. **1898**: 135. 1898.

Pileus soft, fleshy, putrescent, not viscid, squamulose; lamellae free, white, colored green by the spores at maturity; spores green; annulus persistent, movable; stipe bulbous; volva none.

Type species, *Chlorophyllum esculentum* Mass.

1. **Chlorophyllum Molybdites** Mass. Kew Bull. **1898**: 136. 1898.

Agaricus Molybdites G. Meyer, Fl. Esseq. 300. 1818.
Pholiota Glaziovii Berk. in Warming, Vidensk. Meddel. **1879–80**: 32. 1879.
Agaricus Morgani Peck, Bot. Gaz. 4: 137. 1879.
Lepiota ochrospora Cooke & Mass. Grevillea 21: 73. 1893.
Chlorophyllum esculentum Mass. Kew Bull. **1898**: 136. 1898.
Agaricus guadelupensis Pat. Bull. Soc. Myc. Fr. 15: 197. 1899.

Pileus fleshy, at first globose then convex and expanded or depressed, gregarious or in rings, 10–20 cm. broad; surface white beneath the cuticle, radiate-fibrillose, the cuticle at first continuous, buff to pale-umber, soon broken up, except in the center, into irregular scales and

patches, which are gradually drawn apart and at length are more or less deciduous; context thick, firm, white, changing to reddish when bruised, poisonous to some persons; lamellae rather broad, ventricose, close, remote from the stipe, at first white then changing to a greenish hue, at length dull-green; spores in mass at first bright-green, fading to dull-green and becoming sordid with age, subellipsoid, obliquely apiculate, uniguttulate, 7–11 × 5–7 μ; stipe hard and firm, tapering upward from the thickened base, fistulose, fibrous-stuffed, the surface glabrous, white or buff to pale-umber, 10–20 cm. long, 1–2 cm. thick at the apex, 2–4 cm. thick at the base; annulus thick, ample, soft, subcoriaceous, movable, apical.

TYPE LOCALITY: Guiana.

HABITAT: Meadows, pastures, cultivated grounds, and open woods.

DISTRIBUTION: New Jersey to Iowa and southward to Arizona, Texas, the West Indies, and Brazil.

ILLUSTRATIONS: McIlv. Am. Fungi *pl. 14;* Jour. Cinc. Soc. Nat. Hist. 6: *pl. 2;* Hard, Mushrooms *f. 35.*

EXSICCATI: Ellis & Ev. Fungi Columb. *1301.*

50. VAGINATA (Nees) S. F. Gray, Nat. Arr. Brit. Pl. 1: 601. 1821.

Amanita Pers. Tent. Disp. Fung. 63. 1797. Not *Amanita* Hall. 1768.
Agaricus ? Vaginata Nees, Überbl. Syst. Pilze 46. 1817.
Amanitopsis Roze, Bull. Soc. Bot. Fr. 23: 50. 1876.
Amanitella Earle, Bull. N. Y. Bot. Gard. 5: 449. 1909.

Pileus fleshy, putrescent, glabrous, farinose, or with thin volval patches, usually striate; lamellae free; spores hyaline; stipe central, fleshy; veil none; volva adnate, fragile, or free, usually forming a basal sheath or cup.

Type species, *Amanita livida* Pers.

Volva membranous, free; stipe not bulbous.	
Volva narrow, closely sheathing the stipe.	
Volva elongate, persistent; lamellae white; pileus variously colored.	1. *V. plumbea.*
Volva elongate, persistent; lamellae cream-colored; pileus buff, with large, white volval patches; species confined to southern California.	2. *V. velosa.*
Volva short, rather friable; lamellae lemon-yellow; pileus orange-red.	3. *V. parcivolvata.*
Volva wide, not sheathing; pileus dull-white to yellowish, rarely reddish-brown, usually floccose or scaly.	4. *V. agglutinata.*
Volva membranous, adnate to the base of the bulbous stipe, limb free.	
Stipe less than 3 cm. long; pileus pale-brown.	5. *V. pusilla.*
Stipe much longer; pileus white or yellowish.	6. *V. albocreata.*
Volva fragile, adnate to the pileus and stipe in the form of squamules or patches.	
Pileus mealy or densely floccose; less than 5 cm. broad.	7. *V. farinosa.*
Pileus decorated with few or many patches; usually more than 5 cm. broad.	1. *V. plumbea strangulata.*

1. Vaginata plumbea (Schaeff.) Murrill, Mycologia 5: 82. 1913.

Agaricus plumbeus Schaeff. Fung. Bavar. 4: 37. 1774.
Agaricus fulvus Schaeff. Fung. Bavar. 4: 41. 1774.
Agaricus hyalinus Schaeff. Fung. Bavar. 4: 63. 1774.
Agaricus badius Schaeff. Fung. Bavar. 4: 63. 1774.
Agaricus vaginatus Bull. Herb. Fr. *pl. 98.* 1782.
Amanita livida Pers. Syn. Fung. 247. 1801.
Amanita spadicea Pers. Syn. Fung. 248. 1801.
Vaginata livida S. F. Gray, Nat. Arr. Brit. Pl. 1: 601. 1821.
Amanitopsis vaginata P. Karst. Hattsv. 1: 6. 1879.
Vaginata vaginata Murrill, Mycologia 3: 80. 1911.

Pileus thin, fragile, campanulate to expanded, 3–10 cm. broad; surface dry, glabrous or occasionally adorned with fragments of the volva, exceedingly variable in color, ranging from white to shades of yellow, gray, brown, and reddish-brown, the commonest color probably being plumbeous, margin deeply striate; context thin, white; lamellae free, fragile, white or sometimes tinged with yellowish or smoky-brown hues; spores globose, smooth, hyaline, 8–10 μ, rarely larger; stipe subequal, slightly attenuate upward, scarcely enlarged below, glabrous or floccose-squamulose, variable in color, hollow or stuffed, 6–16 cm. long, about 5–10 mm. thick, sometimes larger; volva conspicuous, membranous, white, persistent, elongate, sheathing the base of the stipe.

TYPE LOCALITY: Bavaria.
HABITAT: Woods and groves.
DISTRIBUTION: Greenland to Alabama and west to Oregon and California; sparingly in the northern Bahamas and the mountains of Jamaica; also in Europe and Asia.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **48**: *pl. 17;* Atk. Stud. Am. Fungi *f. 77;* Boudier, Ic. Myc. *pl. 7;* Bull. Herb. Fr. *pl. 98, 512;* Hussey, Ill. Brit. Myc. **2**: *pl. 34;* McIlv. Am. Fungi *pl. 10, f. 1;* Mycologia 1: *pl. 7, f. 5;* Schaeff. Fung. Bavar. *pl. 85, 86, 95, 244, 245;* Vitt. Descr. Funghi Mang. *pl. 16;* Cooke, Brit. Fungi *pl. 1116, 1317;* Gill. Champ. Fr. *pl. 22 (21), 23 (24), 24 (23), 22.*
EXSICCATI: Herpell, Präp. Hutpilze *77;* Rav. Fungi Am. *397;* Karst. Finl. Fungi *202;* Sydow, Myc. Mar. *1507;* Shear, N. Y. Fungi *4.*

2. Vaginata velosa (Peck) Murrill, Mycologia 4: 239. 1912.

Amanitopsis velosa Peck, Bull. Torrey Club **22**: 485. 1895.

Pileus globose to bell-shaped, at length nearly plane, 5–10 cm. broad; surface buff or orange-buff, glabrous, with conspicuous, white, felty volval patches, margin sulcate-striate; context firm, white; lamellae reaching the stipe, crowded, subventricose, pale-cremeous; spores globose, smooth, hyaline, 10–12 µ; stipe tapering upward when young, at length subequal, not bulbous, white or whitish, stuffed, 7–10 cm. long, 0.5–1 cm. thick; volva large, thick, membranous, closely sheathing, at times spreading at the apex.

TYPE LOCALITY: Pasadena, California.
HABITAT: Old pastures and thin woods.
DISTRIBUTION: Southern California.

3. Vaginata parcivolvata (Peck) Murrill, Mycologia 5: 83. 1913.

Amanitopsis parcivolvata Peck, Bull. Torrey Club **27**: 610. 1900.
Amanita muscaria coccinea Beardslee, Jour. Elisha Mitchell Sci. Soc. **24**: 120. 1908.

Pileus hemispheric or convex to plane or depressed, 5–10 cm. broad; surface brilliant-orange-red, fading to yellow with age or on the margin, adorned with volval fragments which soon disappear, leaving the surface smooth and viscid, margin plicate-striate; context white tinged with orange, reddish under the cuticle; lamellae free, broad, rounded at the outer extremity, distinctly lemon-yellow, pulverulent or floccose on the edges; spores broadly ellipsoid, smooth, hyaline, 9–12×6–8 µ; stipe slender, equal or slightly tapering upward, floccose or mealy, lemon-yellow, rarely fading to white, stuffed or hollow, 8–12 cm. long, 8–12 mm. thick; volva white, slight, friable, evanescent.

TYPE LOCALITY: New Jersey.
HABITAT: Under oaks in thin woods.
DISTRIBUTION: New Jersey to North Carolina.
ILLUSTRATION: N. Marshall, Mushr. Book *pl. 1.*

4. Vaginata agglutinata (Berk. & Curt.) O. Kuntze, Rev. Gen. 3: 539. 1898.

Agaricus agglutinatus Berk. & Curt. Jour. Bot. & Kew Misc. **1**: 97. 1849.
Agaricus volvatus Peck, Ann. Rep. N. Y. State Mus. **24**: 59. 1872.
Agaricus soleatus Howe, Bull. Torrey Club **5**: 42. 1874.
Amanitopsis agglutinata Sacc. Syll. Fung. **5**: 23. 1887.
Amanitopsis volvata Sacc. Syll. Fung. **5**: 23. 1887.

Pileus hemispheric to plane, sometimes slightly depressed, very variable in size, 2–8 cm. broad; surface dull-white or yellowish, rarely reddish-brown at the center or entirely reddish-brown, pulverulent, floccose-squamose, or with large volval patches; lamellae free, rounded behind, broad, crowded, white; spores ellipsoid, smooth, hyaline, 10–12×6–7 µ; stipe very variable in size, 1–7 cm. long, 3–8 mm. thick, equal or tapering upward, enlarged at the base, whitish, minutely floccose-squamose, stuffed or solid; volva unusually large, firm, membranous, persistent, more or less lobed.

TYPE LOCALITY: Society Hill, South Carolina.
HABITAT: Open woods and wood borders.
DISTRIBUTION: New England to Alabama and west to Ohio; also in Europe.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **53**: *pl. A, f. 6–10;* Mycologia 5: *pl. 86, pl. 87, f. 2,*

5. **Vaginata pusilla** (Peck) Murrill, Mycologia 5: 83. 1913.

Amanitopsis pusilla Peck, Ann. Rep. N. Y. State Mus. **50**: 96. 1898.

Pileus thin, broadly convex or plane, subumbonate, 2.5 cm. broad; surface subglabrous, pale-brown, even on the margin; lamellae free, crowded, narrow, thin, becoming brownish; spores broadly ellipsoid, smooth, hyaline, 5–6×4 μ; stipe short, bulbous, whitish, 1.5–2.5 cm. long, 2–4 mm. thick; volva adnate to the bulb, with free limb, as in *Venenarius phalloides*.

TYPE LOCALITY: Gouverneur, New York.
HABITAT: Grassy ground.
DISTRIBUTION: Known only from the type locality.

6. **Vaginata albocreata** (Atk.) Murrill, Mycologia 5: 84. 1913.

Agaricus nivalis Peck, Ann. Rep. N. Y. State Mus. **33**: 48. 1883. Not *A. nivalis* Grev. 1823.
Amanitopsis albocreata Atk. Jour. Myc. **8**: 111. 1902.

Pileus convex to expanded, 5–8 cm. broad; surface viscid, with floccose volval patches which usually mostly disappear with age, white with yellow center, or at times entirely pale-yellow, margin finely striate and minutely tuberculate; context thin, white; lamellae free or slightly adnexed, rounded in front, narrowed behind, floccose on the edge; spores globose, smooth, hyaline, 7–10 μ; stipe cylindric or slightly tapering upward, abruptly bulbous, minutely floccose or farinose, white, hollow, 10–13 cm. long, 6–12 mm. thick; bulb ocreate, with limb narrow, as in *V. pantherinus*, and sometimes very slight; volval patches may occur in concentric lines on the lower part of the stipe.

TYPE LOCALITY: Essex County, New York.
HABITAT: Open grassy places or thin woods.
DISTRIBUTION: New York to Alabama.

7. **Vaginata farinosa** (Schw.) Murrill, Mycologia 4: 3. 1912.

Amanita farinosa Schw. Schr. Nat. Ges. Leipzig **1**: 79. 1822.
Amanitopsis farinosa Atk. Stud. Am. Fungi 76. 1900.

Pileus thin, convex to nearly plane, 2–5 cm. broad; surface cinereous to murinous, usually darker on the disk, densely floccose-mealy or pruinose-pulverulent, deeply striate on the margin; lamellae free or adnexed, tapering behind, subcrowded, plane, narrow, white or slightly yellowish; spores globose to ellipsoid, smooth, hyaline, 6–7×5.5–6.5 μ; stipe cylindric or slightly tapering upward, subbulbous, nearly glabrous above, pruinose or floccose below, white or grayish, hollow or solid, 4–7 cm. long, 3–6 mm. thick; volva yellow, friable, floccose-powdery, grayish to fuliginous, evanescent.

TYPE LOCALITY: North Carolina.
HABITAT: Open deciduous woods.
DISTRIBUTION: New York to Alabama.
ILLUSTRATIONS: Mycologia **4**: *pl. 56, f. 5;* Atk. Stud. Am. Fungi *f. 78.*

DOUBTFUL SPECIES

Amanitopsis adnata (W. G. Smith) Sacc. Syll. Fung. **5**: 24. 1887. Described from England, and reported from this country by Morgan, Harkness, and others. I have seen no American specimens that could be so referred.

Agaricus baccatus Fries, Epicr. Myc. 12. 1838. Founded on Micheli's plate 80, figure 4, accompanied by a brief description. The warts on the pileus are too evenly distributed, and the volva is too small and circumscissile to suggest our *Vaginata agglutinata*. If an annulus were present, the figure might suggest white forms of *Venenarius pantherinus*.

Amanitopsis hyperborea P. Karst. Hattsv. **1**: 7. 1879. Reported from Greenland by Rostrup (Medd. Grönl. **3**: 528. 1888), but I have not seen it among American collections.

Agaricus praetorius Fries, Epicr. Myc. 11. 1838. Specimens of *Venenarius Caesareus* from America have been referred to this species.

Amanitopsis pubescens Sacc. Syll. Fung. **5**: 25. 1887. *Amanita pubescens* Schw. Schr. Nat. Ges. Leipzig **1**: 79. 1822. Described from specimens collected in grassy places in North Carolina. Schweinitz said it was rare, and Morgan, Beardslee, and others say that it

has not been collected since his time. The description might suggest *Vaginata farinosa* or *Vaginata agglutinata,* but Schweinitz certainly knew the former and the volva of the latter could not be characterized as "vanishing." Some forms of *Venenarius solitarius* might be thought of, but none of them are quite small enough.

Amanitopsis pulverulenta Peck, Bull. N. Y. State Mus. 116: 17. 1907. Described from plants collected by Peck on shaded roadside banks at Port Jefferson, New York, August, 1906. There are two boxes of specimens at Albany. One contains a single specimen having a long, pulverulent stipe, with bulbous base and no volva, and the pileus covered, except at the center, with a fine powder as in *Lepiota cretacea.* The other box contains several specimens, evidently the types, with short, often radicate stems and caps that are sometimes gemmate. These latter plants are certainly *Venenarius solitarius,* and there is little doubt that the species belongs in that category.

Amanitopsis strangulata (Fries) P. Karst. Hattsv. 1: 7. 1879. *Agaricus strangulatus* Fries, Epicr. Myc. 6. 1838. Much has been written about this species. Beardslee has recently studied it in Sweden and considers it distinct from *Vaginata plumbea,* being more robust and with an entirely different kind of volva. Boudier is of the same opinion. Fries's description in the *Epicrisis* and Battarra's plate call for an annulus, while Fries's later description and figure refer to the plant as we now know it. If the plant is distinct, it must have another name, selected from such synonyms as *Agaricus Ceciliae* Berk. & Br. or *Agaricus inauratus* Secr. In America, it is reported from New England to Alabama and west to Wisconsin. Variations occur all the way from the entire sheath of *V. plumbea* to the extreme form in which the volva is broken into small particles and distributed on the surface of the cap. I will admit that this extremely friable form of the volva is puzzling, but, after all, it is difficult to separate it specifically from the livid form of *V. plumbea.* Lucand has figured a specimen of *V. plumbea* in his group of *A. strangulata.* Did he get the plants mixed, or is this another indication that they are not distinct species?

51. VENENARIUS Earle, Bull. N. Y. Bot. Gard. 5: 450. 1909.

Amanita Pers. Tent. Disp. Fung. 63, in part. 1797. Not *Amanita* Hall. 1768.
Agaricus § *Amanita* Fries, Syst. Myc. 1: 12. 1821.

Pileus fleshy, putrescent, solitary; surface glabrous, farinose, or with volval patches; lamellae free; spores hyaline; stipe central, fleshy; veil present, forming an annulus; volva present, free to adnate.

Type species, *Agaricus muscarius* L.

Volva compound, persistent; species confined to California. — 1. *V. bivolvatus.*
Volva simple, persistent or evanescent.
  Volva free, conspicuous, persistent; stipe cylindric.
    Volva wide; lamellae yellow; pileus red or reddish. — 2. *V. Caesareus.*
    Volva narrow; lamellae white; pileus white or brown. — 3. *V. spretus.*
  Volva adnate to the base of the bulbous stipe, limb free, usually persistent.
    Spores globose or subglobose.
      Annulus becoming blackish. — 4. *V. porphyrius.*
      Annulus remaining white.
        Pileus not conspicuously striate.
          Pileus white or variously colored; stipe hollow or stuffed; spores globose, 7–10 μ. — 5. *V. phalloides.*
          Pileus white; stipe solid; spores broadly ellipsoid, 10–12 ×8–10 μ; species confined to California. — 6. *V. ocreatus.*
        Pileus conspicuously striate.
          Pileus 8–10 cm. broad. — 7. *V. umbrinidiscus.*
          Pileus 1.5–2.5 cm. broad. — 8. *V. virginianus.*
    Spores oblong or broadly ellipsoid.
      Annulus evanescent; species known only from Michigan. — 9. *V. Peckianus.*
      Annulus persistent; species known only from California. — 10. *V. calyptratoides.*
  Volva ocreate, usually marginate; pileus covered with remnants of the volva, or rarely smooth.
    Pileus entirely smooth, nearly white, striate on the margin. — 11. *V. glabriceps.*
    Pileus covered with volval patches.
      Spores ovoid, 9 ×5 μ; species confined to the Pacific coast. — 12. *V. pantherinoides.*
      Spores larger or of different shape; species confined to the eastern United States.
        Pileus 3–7 cm. broad, white or tinged with yellow or olive. — 13. *V. cothurnatus.*
        Pileus 8–10 cm. broad, umber-brown, sometimes tinged with yellow. — 14. *V. velatipes.*

Volva fragile, adnate to the pileus and stipe as warts, patches, or scales; pileus rarely smooth throughout, often becoming smooth with age.
  Context staining reddish when wounded; pileus usually dull-reddish. 15. *V. rubens.*
  Stipe staining reddish below when bruised, tomentose to floccose-scaly; pileus flavous to some shade of melleous. 16. *V. flavorubescens.*
  Neither context nor stipe becoming reddish when wounded.
    Pileus dark-brown, smooth throughout, margin not striate. 17. *V. Morrisii.*
    Pileus pale-yellow to orange.
      Pileus pale-yellow, 4–5 cm. broad, tuberculate-striate on the margin; stipe smooth, glabrous; volva fragile, subappressed to the bulbous base. 18. *V. russuloides.*
      Pileus chrome-yellow to orange-yellow, 3–8 cm. broad; stipe slender, smooth, with the remnants of the fragile, yellowish volva at the base. 19. *V. Frostianus.*
      Pileus orange to yellow, 8–20 cm. broad; stipe usually rough, with concentric, margined scales adnate to the bulbous base. 20. *V. muscarius.*
    Pileus some shade of melleous or yellowish-brown, at times tinged with green; species known only from Washington and Oregon.
      Pileus 6 cm. broad. 21. *V. praegemmatus.*
      Pileus 10–20 cm. broad. 22. *V. Lanei.*
    Pileus and stipe distinctly rose-tinted. 23. *V. roseitinctus.*
    Pileus milk-white or grayish, tinged with yellow at times.
      Pileus 2.5–5 cm. broad.
        Pileus milk-white; spores oblong, 4–5 × 2 μ; species confined to Mexico. 24. *V. mexicanus.*
        Pileus usually grayish; spores globose, 7.5–10 μ; species confined to New England. 25. *V. crenulatus.*
      Pileus 5–20 cm. broad, white to grayish, pulverulent, warty, or spiny; stipe bulbous or radicate; odor often strong, resembling chlorin; spores ellipsoid, 7–14 × 5–9 μ. 26. *V. solitarius.*

1. **Venenarius bivolvatus** (Peck) Murrill, Mycologia 4: 241. 1912.

Amanita bivolvata Peck, Bull. Torrey Club **36**: 329. 1909.

Pileus fleshy, convex or nearly plane, 7–10 cm. broad; surface at first viscid, white, brownish in the center, striate on the margin; context white; lamellae free, white, crowded, unequal; spores globose or broadly ellipsoid, smooth, hyaline, 10–12 × 8–10 μ; stipe equal, white, flocculose, solid, 13–15 cm. long, 1.5–2.5 cm. thick; annulus narrow, white, often disappearing with age; volva large, thick, soft, spongy, lobed on the outer margin and having an elevated entire nner margin surrounding the stipe.

TYPE LOCALITY: Claremont, California.
HABITAT: Under oak trees.
DISTRIBUTION: Known only from the type locality.

2. **Venenarius Caesareus** (Scop.) Murrill, Mycologia 5: 73. 1913.

Agaricus Caesareus Scop. Fl. Carn. ed. 2. 2: 419. 1772.
Amanita Caesarea Pers. Syn. Fung. 252. 1801.
Amanita pellucida Banning & Peck; Peck Ann. Rep. N. Y. State Mus. **44**: 178. 1892.

Pileus hemispheric to expanded, 8–16 cm. broad; surface red, orange, or yellow, rarely pale-yellow, smooth, shining, occasionally decorated with a patch from the volva, margin thin, deeply striate; context yellow, unchanging, mild and agreeable to the taste, odor none; lamellae free, subcrowded, bright-yellow; spores ellipsoid, smooth, hyaline, 8–11 × 6–7 μ; stipe cylindric or subventricose, not bulbous at the base, white or pale-yellow, slightly flocculose, stuffed, 10–16 cm. long, 1–2 cm. thick; annulus ample, white or pale-yellow, apical; volva large, membranous, tough, white, forming a wide, free cup with lobed or toothed margin.

TYPE LOCALITY: Carniola.
HABITAT: In woods.
DISTRIBUTION: New England to Alabama and west to Ohio; also in Europe and Asia.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **48**: *pl. 15;* Atk. Stud. Am. Fungi *f. 72, pl. 19, f. 2;* Bull. Herb. Fr. *pl. 120;* Bres. Funghi Mang. *pl. 1;* Dufour, Atl. Champ. *pl. 2;* Gill. Champ. Fr. *pl. 4* (*7*); Krombh. Abbild. *pl. 8;* Richon & Roze, Atl. Champ. *pl. 2;* Vitt. Descr. Funghi Mang. *pl. 1.*
EXSICCATI: D. Sacc. Myc. Ital. *401;* Rav. Fungi Am. *406;* Shear, N. Y. Fungi *1.*

3. **Venenarius spretus** (Peck) Murrill, Mycologia 5: 73. 1913.

Agaricus (*Amanita*) *spretus* Peck, Ann. Rep. N. Y. State Mus. **32**: 24. 1879.

Pileus subovoid to convex, at length expanded, 7–12 cm. broad; surface white or pale-grayish-brown, subviscid, glabrous or with few volval fragments, faintly striate on the margin;

lamellae adnexed, subcrowded, rather narrow, white; spores ellipsoid, smooth, hyaline, 10–12 × 6–8 μ; stipe cylindric, equal, not bulbous at the base, smooth, nearly glabrous, slightly pruinose at the apex, white, solid or stuffed, 7–10 cm. long, about 1.5 cm. thick; annulus membranous, persistent, white, attached about 1–2 cm. from the apex of the stipe; volva thin, membranous, ample, persistent, closely sheathing but not adnate.

TYPE LOCALITY: Sandlake, New York.
HABITAT: Open or bushy places.
DISTRIBUTION: Maine to Alabama, eastern United States.
ILLUSTRATION: Atk. Stud. Am. Fungi *f. 71.*

4. **Venenarius porphyrius** (Fries) Murrill, Mycologia **5**: 81. 1913.

Amanita porphyria Alb. & Schw. Consp. Fung. 142. 1805.

Pileus campanulate to expanded, solitary, 4–5 cm. broad; surface moist, subglabrous, subfuscous, varying to livid-purple or brown, smooth on the margin; lamellae adnexed, white; spores glabrous, smooth, hyaline, 8–10 μ; stipe stuffed or hollow, bulbous at the base, glabrous, whitish or subconcolorous, 6–8 cm. long; annulus membranous, persistent, superior, becoming sooty-black; volva free, whitish or subfuscous, adnate to the base of the large, rounded bulb, conspicuous, lobed, thick and fleshy, persistent.

TYPE LOCALITY: Germany.
HABITAT: In pine woods.
DISTRIBUTION: Northeastern United States; also in Europe.
ILLUSTRATIONS: Alb. & Schw. Consp. Fung. *pl. 11, f. 1;* Gill. Champ. Fr. *pl. 5* (*17*).

5. **Venenarius phalloides** (Fries) Murrill, Mycologia **4**: 240. 1912.

Agaricus phalloides Fries, Syst. Myc. **1**: 13. 1821.
Amanita phalloides Quél. Champ. Jura Vosg. 28. 1872.
Amanita floccocephala Atk. Stud. Am. Fungi 62. 1900.
Amanita lignophila Atk. Ann. Myc. **7**: 366. 1909.
Amanita bisporigera Atk. Bot. Gaz. **41**: 348. 1906.

Pileus convex or campanulate to expanded, 3–15 cm. broad; surface smooth, slightly viscid when moist, glabrous or decorated with scattered patches of the volva, varying in color from pure-white to yellow, yellowish-green, green, gray, brown, or blackish, margin rarely striate; context extremely poisonous, white, not objectionable to the taste but having at times a somewhat disagreeable odor; lamellae white, unchanging, broad, ventricose, rounded at the base and free or adnexed; spores globose, smooth, hyaline, 7–10 μ; stipe subequal, bulbous, long, smooth or floccose-scaly, usually white, stuffed or hollow, 6–15 cm. long, 0.5–1.5 cm. thick; annulus superior, membranous, thin, ample, persistent or at times becoming torn away, usually white; volva white, adnate to the base of the large, rounded bulb, the limb usually free, conspicuous, lobed, thick and fleshy, persistent, but at times breaking partly or wholly into irregular patches that are either carried up on the surface of the pileus or remain at the base of the stipe.

TYPE LOCALITY: Europe.
HABITAT: On the ground or rarely on decayed wood in woods.
DISTRIBUTION: New Brunswick to Alabama and west to Iowa and California; also in Europe.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **48**: *pl. 40, 41, f. 1–7;* Atk. Stud. Am. Fungi *f. 55–61;* Cooke, Brit. Fungi *pl. 2* (*2*); Fries, Sv. Aetl. Svamp. *pl. 2;* Gibson, Edible Toadst. *pl. 1;* McIlv. Am. Fungi *pl. 6, f. 2, 3;* Vitt. Descr. Funghi Mang. *pl. 11, 17;* Mycologia **1**: *pl. 15, f. 2,* **5**: *pl. 87, f. 1;* Gill. Champ. Fr. *pl. 3* (*6*); Atk. Bot. Gaz. **41**: *f. 1–17.*
EXSICCATI: Sydow, Myc. Mar. *616;* Cavara, Fungi Longob. *69, 155;* Shear, N. Y. Fungi *2.*

6. **Venenarius ocreatus** (Peck) Murrill, Mycologia **4**: 240. 1912.

Amanita ocreata Peck, Bull. Torrey Club **36**: 330. 1909.

Pileus fleshy, convex or nearly plane, 4–6 cm. broad; surface glabrous, smooth, white, margin not striate; context white; lamellae white, broadly sinuate, unequal, crowded; spores globose or ellipsoid, smooth, hyaline, 10–12 × 8–10 μ; stipe equal, white, glabrous or slightly fibrillose below, minutely floccose above the annulus, solid, 8–10 cm. long, 1–2 cm. thick; annulus thin, white, membranous; volva white, soft, adnate, with a well-developed, entire, free limb.

TYPE LOCALITY: Claremont, California.
HABITAT: Under oak trees.
DISTRIBUTION: Known only from the type locality.

7. **Venenarius umbrinidiscus** Murrill, Mycologia 4: 242. 1912.

Amanita umbrinidisca Murrill, Mycologia 4: 262. 1912.

Pileus fleshy, drying very thin, convex to expanded, at length depressed, umbonate, solitary, reaching 10 cm. broad; surface moist, glabrous, with large, irregular, adherent patches of the white volva, melleous, fading to stramineous on the conspicuously long-striate margin, the umbo yellow in young plants, becoming umbrinous; lamellae free, broad, not crowded, white; spores large, subglobose, smooth, hyaline, 7–9 μ; stipe white or slightly yellowish, tapering upward, 12 cm. long, 1–2 cm. thick; annulus ample, white, persistent, fixed above the center of the stipe; volva rather short, white, tough, 3 cm. broad, with subentire free limb.

TYPE LOCALITY: Seattle, Washington.
HABITAT: On the ground in a fir forest.
DISTRIBUTION: Washington.

8. **Venenarius virginianus** Murrill, sp. nov.

Pileus convex to plane, small, thin, solitary to gregarious, 2–2.5 cm. broad; surface moist to viscid, fuliginous, glabrous, margin white, long-striate; context thin, white, unchanging; lamellae free, white, unchanging, subdistant; spores subglobose to ovoid, smooth, hyaline, $10 \times 8.5\ \mu$; stipe cylindric and equal above, somewhat bulbous at the base, smooth, white, glabrous, 4–5 cm. long, 5 mm. thick; annulus median, white, usually persistent; volva rather large and distinct, white, adnate to the base of the stipe and forming a conspicuous cup.

Type collected on a moist, gravelly bank in oak woods near Mountain Lake, Virginia, 1300 m. elevation, July 8–14, 1909, *W. A. Murrill 28*.
DISTRIBUTION: Mountain Lake, Virginia.

9. **Venenarius Peckianus** (Kauffm.) Murrill.

Amanita Peckiana Kauffm.; Peck, Mycologia 5: 67. 1913.

Pileus at first ovoid, becoming broadly convex or nearly plane, 5–9 cm. broad; surface glabrous at first becoming fibrillose or somewhat scurfy with minute, adnate, pinkish or cream-colored squamules, white, not striate; margin at first incurved and bordered by the thickish union of the universal and partial veil, at length crenate-fringed or lacerate-appendiculate; context firm, thickish, white; lamellae free, reaching the stipe, moderately broad, much broader in front, subellipsoid, pure-white, flocculose on the edges; spores oblong, obtuse, $12–16 \times 5–7\ \mu$; stipe stout, tapering upward, stuffed or hollow, bulbous, 5–9 cm. long, 1–2 cm. thick; volva thick, firm, loose, margined with ovate lobes, the flesh often pinkish or salmon-colored, especially toward the base; veil very thin, evanescent, not forming a persistent annulus.

TYPE LOCALITY: New Richmond, Michigan.
HABITAT: Sandy soil under white pine trees.
DISTRIBUTION: Known only from the type locality.

10. **Venenarius calyptratoides** (Peck) Murrill, Mycologia 4: 241. 1912.

Amanita calyptratoides Peck, Bull. Torrey Club 36: 329. June, 1909.
Amanita calyptroderma Atkinson & Ballen, Ann. Myc. 7: 365. August, 1909.

Pileus fleshy, convex to nearly plane, 4–22 cm. broad, covered in the center by a single large irregular fragment or by small fragments of the volva; surface grayish-brown or lead-colored, sometimes ochraceous or cream-colored, margin striate; context white, of mild flavor; lamellae adnexed, sinuate, unequal, subcrowded, white or cremeous; spores broadly ellipsoid, smooth, hyaline, often uninucleate, usually with an oblique apiculus at one end, $8–12 \times 6–8\ \mu$; stipe subequal, white, striate at the top, floccose, hollow, 8–12 cm. long, 1–4 cm. thick; annulus slight, evanescent; volva white, prominent, 2–4 cm. long.

TYPE LOCALITY: Claremont, California.
HABITAT: In groves or forests.
DISTRIBUTION: California.

11. **Venenarius glabriceps** (Peck) Murrill.

Amanita glabriceps Peck, Bull. N. Y. State Mus. 131: 18. 1909.

Pileus thin, ovoid, becoming broadly convex or centrally depressed, 5–10 cm. broad; surface glabrous, viscid when moist, rarely adorned when young with a few patches of the ruptured volva, white or yellowish-white, sometimes slightly brownish in the center, margin usually finely striate; context white; lamellae thin, crowded, free, unequal, white; spores globose, smooth, hyaline, 7.5 μ; stipe long, slender, stuffed, glabrous or floccose-squamulose, white, bulbous at the base, 7.5–15 cm. long, 6–12 mm. thick; annulus thin, white, sometimes appendiculate or evanescent; volva adnate, marginate, definitely circumscissile.

TYPE LOCALITY: Coopers Plains, New York.
HABITAT: Among fallen leaves in woods.
DISTRIBUTION: New York.
ILLUSTRATIONS: Bull. N. Y. State Mus. 131: *pl. U, f. 1–4.*

12. **Venenarius pantherinoides** Murrill, Mycologia 4: 242. 1912.

Amanita pantherinoides Murrill, Mycologia 4: 262. 1912.

Pileus thick, fleshy, globose to plane, solitary, reaching 10 cm. broad; surface melleous or dirty-cremeous with brown or chestnut center, sticky when wet, slightly striate in old plants, the white volval patches small, numerous, regular, and regularly distributed until many of them fall away with age; lamellae sinuate, crowded, plane, white; spores ovoid, smooth, hyaline, 9×5 μ; stipe tapering upward, white, glabrous, reaching 11 cm. long and about 2 cm. thick, with bulbous base; annulus large, white, superior, persistent; volva ocreate, white, 3 cm. broad, tough, regular, persistent, with entire or undulate free limb.

TYPE LOCALITY: Seattle, Washington.
HABITAT: Sandy soil in open woods.
DISTRIBUTION: Washington and Oregon.

13. **Venenarius cothurnatus** (Atk.) Murrill, Mycologia 5: 74. 1913.

Amanita cothurnata Atk. Stud. Am. Fungi 66. 1900.

Pileus globose to convex, at length expanded, 3–7 cm. broad; surface quite viscid when moist, decorated with small, scattered, soft, floccose warts, white or tinged with lemon-yellow, or with the center tawny-olive, even or finely striate on the margin; context white, without odor; lamellae rounded behind, crowded, plane, white; spores globose, smooth, hyaline, 7–9 μ; stipe cylindric, bulbous, flocculose or floccose-scaly, white, hollow or rarely stuffed, 5–12 cm. long, 0.4–1 cm. thick; annulus white, thick, persistent; volva white, adnate to the large, ovoid bulb, circumscissile, breaking uniformly and leaving an abrupt ring at the top of the bulb.

TYPE LOCALITY: North Carolina.
HABITAT: On the ground in woods.
DISTRIBUTION: New York to Alabama and west to Michigan and Tennessee.
ILLUSTRATIONS: Atk. Stud. Am. Fungi *f. 68–70;* Mycologia 5: *pl. 87, f. 6.*

14. **Venenarius velatipes** (Atk.) Murrill, Mycologia 5: 75. 1913.

Amanita velatipes Atk. Stud. Am. Fungi 63. 1900.

Pileus broadly ovoid to convex, at length expanded, thin, 8–10 cm. broad; surface viscid, decorated with scattered, white, volval scales, reddish-brown or umber-brown, sometimes yellow-tinged with the center darker, margin striate, elevated at times with age; lamellae ventricose, white; spores ovoid with unequal sides, smooth, hyaline, 8–10×6–7 μ; stipe cylindric, bulbous and abruptly pointed below, smooth or floccose-scaly, hollow or stuffed, 15–20 cm. long, 1–1.5 cm. thick; annulus white, ample, inferior, persistent; volva adnate, ocreate, white, becoming more or less torn or broken.

TYPE LOCALITY: Ithaca, New York.
HABITAT: Beech woods.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATIONS: Atk. Stud. Am. Fungi *f. 64–67.*

15. Venenarius rubens (Scop.) Murrill, Mycologia 5: 75. 1913.

Agaricus rubens Scop. Fl. Carn. ed. 2. 2: 416. 1772.
Agaricus scandiccinus Scop. Fl. Carn. ed. 2. 2: 417. 1772.
Agaricus pustulatus Schaeff. Fung. Bavar. 4: 39. 1774.
Agaricus myodes Schaeff. Fung. Bavar. 4: 69. 1774.
Agaricus verrucosus Bull. Herb. Fr. *pl. 316.* 1786.
Amanita rubescens Pers. Syn. Fung. 254. 1801.
Amanita aspera Pers. Syn. Fung. 256. 1801.
Agaricus rubescens Fries, Syst. Myc. 1: 18. 1821. Not *A. rubescens* Schaeff. 1774.
Agaricus asper Fries, Syst. Myc. 1: 18. 1821.
Agaricus magnificus Fries, Epicr. Myc. 10. 1838.
Agaricus flavorubens Mont. Syll. Crypt. 96. 1856.

Pileus ovoid to convex, at length expanded, 6–12 cm. broad; surface adorned with numerous thin, floccose or farinose warts, variable in color, always tinged with reddish or brownish-red, changing slowly to reddish when bruised, margin smooth or faintly striate; context white, changing slowly to reddish when bruised, with pleasant odor and taste; lamellae free or slightly adnexed, crowded, nearly plane, white, characteristically chalky-white when dry; spores ovoid to ellipsoid, smooth, hyaline, $8–9 \times 6–7\ \mu$; stipe equal or slightly tapering upward, usually bulbous, squamulose, whitish suffused with red, becoming reddish when bruised, stuffed, 6–20 cm. long, 6–12 mm. thick; annulus superior, ample, white, easily torn; volva very fragile, most of the fragments appearing on the surface of the pileus, while a few remain clinging to the margin of the bulb.

TYPE LOCALITY: Carniola.
HABITAT: Woods and groves.
DISTRIBUTION: Maine to Alabama and west to Ohio; also in Europe.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. 48: *pl. 16;* Atk. Stud. Am. Fungi *pl. 19, f. 1;* Bull. Herb. Fr. *pl. 316;* Cooke, Brit. Fungi *pl. 9* (*10*), *1103;* Gill. Champ. Fr. *pl. 16* (*18*); Krombh. Abbild. *pl. 10, f. 1–5;* Vitt. Descr. Funghi Mang. *pl. 41;* Mycologia 6: *pl. 113, f. 1.*
EXSICCATI: Herpell, Präp. Hutpilze *56;* Sydow, Myc. Mar. *5211;* Cavara, Fungi Longob. *70;* Karst. Finl. Fungi *501.*

16. Venenarius flavorubescens (Atk.) Murrill, Mycologia 5: 76. 1913.

Amanita flavorubescens Atk. Jour. Myc. 8: 111. 1902.

Pileus convex to expanded, scattered or gregarious, sometimes subcespitose, 6–10 cm. broad; surface flavous with a melleous tint to dark-brownish-melleous, usually darker at the center, adorned with yellow or brownish-yellow, floccose patches which may persist or partly disappear with age, margin faintly striate, usually paler; context thin, yellowish; lamellae free to adnexed, not crowded, oblong-elliptic in outline, white, much resembling those of *V. rubens* when dry; spores globose to ellipsoid, smooth, hyaline, $8–10 \times 5–8\ \mu$; stipe subequal or tapering upward, usually somewhat enlarged below, but scarcely bulbous, fibrillose or floccose-scaly, at times conspicuously roughened, characteristically tomentose when dry, concolorous or paler above, reddish below, turning slowly to red at the base when bruised, 5–12 cm. long, 5–12 mm. thick; annulus ample, membranous, persistent, flavous; volva flavous or nearly so, friable, the fragments remaining on the surface of the pileus and at the base of the stipe or disappearing according to weather conditions.

TYPE LOCALITY: Ithaca, New York.
HABITAT: Under oaks on lawns or in thin woods.
DISTRIBUTION: New York, Connecticut, and Pennsylvania.
ILLUSTRATIONS: Mycologia 5: *pl. 87, f. 4, 7.*

17. Venenarius Morrisii (Peck) Murrill, Mycologia 5: 75. 1913.

Amanita Morrisii Peck, Bull. N. Y. State Mus. 139: 42. 1910.

Pileus somewhat bell-shaped to broadly convex, 5–10 cm. broad; surface viscid when moist, with a separable pellicle, glabrous, not adorned with volval fragments, dark-grayish-brown or blackish-brown, slightly paler with age or on drying, margin not striate; lamellae crowded, narrow, white, slightly adnexed, rounded behind; spores subglobose or broadly ellipsoid, smooth, hyaline, $8–10 \times 6–8\ \mu$; stipe equal or slightly tapering upward, somewhat bulbous, flocculose, at times grayish and striate at the apex, usually white, solid or stuffed,

8–14 cm. long, 1–2 cm. thick; annulus superior, double, radiate-striate above, whitish-buff beneath, persistent; volva slight, whitish-buff, fragile, evanescent, the fragments sometimes partly adhering to the bulb but never seen on the surface of the pileus.

TYPE LOCALITY: Natick Swamp, Massachusetts.
HABITAT: Among mosses in swampy places.
DISTRIBUTION: Massachusetts.
ILLUSTRATION: Bull. N. Y. State Mus. 139: *pl. W.*

18. **Venenarius russuloides** (Peck) Murrill, Mycologia 5: 77. 1913.

Agaricus (*Amanita*) *russuloides* Peck, Bull. Buffalo Soc. Nat. Sci. 1: 41. 1873.

Pileus convex to expanded, 4–6 cm. broad; surface pale-yellow, at first decorated with a few white volval fragments, becoming glabrous and viscid, margin tuberculate-striate; lamellae broad, crowded, white, narrowed behind; spores ellipsoid, smooth, hyaline, $10 \times 7–8 \mu$; stipe equal or slightly tapering above, bulbous, white, smooth, glabrous, firm, stuffed, 5–8 cm. long, 0.5–1 cm. thick; annulus thin, white, subevanescent; volva white, fragile, subappressed to the globose bulb, the margin entire or dentate.

TYPE LOCALITY: Greenbush, New York.
HABITAT: Grassy ground in open woods or groves.
DISTRIBUTION: Massachusetts, New York, North Carolina, and Michigan.

19. **Venenarius Frostianus** (Peck) Murrill, Mycologia 5: 76. 1913.

Agaricus muscarius minor Peck, Ann. Rep. N. Y. State Cab. 23: 69. 1872.
Agaricus Frostianus Peck, Ann. Rep. N. Y. State Mus. 33: 44. 1883.
Amanita flavoconia Atk. Jour. Myc. 8: 110. 1902.

Pileus thin, convex to expanded, plane or slightly umbonate, 3–8 cm. broad; surface viscid, adorned with floccose, yellow fragments of the volva, often becoming entirely glabrous, chrome-yellow to orange-yellow, slightly darker in the center, margin smooth or slightly striate; lamellae free, rounded at both ends, subdistant, white or yellowish; spores globose or ovoid, smooth, hyaline, $6–10 \mu$ long; stipe slightly tapering upward from the bulbous base, white or yellowish, smooth, flocculose, stuffed, 6–13 cm. long, 0.4–1.5 cm. thick; annulus membranous, delicate, easily torn away, pale-yellow to chrome-yellow; volva yellowish, usually entirely friable, rarely slightly margining the bulb.

TYPE LOCALITY: New York.
HABITAT: Woods.
DISTRIBUTION: New Brunswick to Alabama and west to Wisconsin.
ILLUSTRATIONS: Atk. Stud. Am. Fungi *pl. 1, f. 2;* McIlv. Am. Fungi *pl. 10, f. 5;* Mycologia 5: *pl. 87, f. 5.*

20. **Venenarius muscarius** (L.) Earle, Bull. N. Y. Bot. Gard. 5: 450. 1909.

Agaricus muscarius L. Sp. Pl. 1172. 1753.
Amanita muscaria Pers. Syn. Fung. 253. 1801.

Pileus globose to convex, at length nearly plane, 8–20 cm. broad; surface slightly viscid when fresh, red or orange to yellow, rarely paler, adorned with numerous whitish or yellowish warts, margin slightly striate; context white, yellow under the pellicle, extremely poisonous; lamellae white, rarely pale-yellowish, rather broad, reaching the stipe and forming slight decurrent lines upon it; spores subglobose to ellipsoid, $9–12 \times 7–9 \mu$; stipe subequal, white or pale-yellowish, stuffed or hollow, usually rough with concentric, margined scales adnate to the bulbous base, 8–25 cm. long, 2–3 cm. thick; annulus superior, large, membranous, persistent, white; volva white or yellowish, usually entirely fragile, rarely slightly margining the bulb.

TYPE LOCALITY: Europe.
HABITAT: In woods and thickets.
DISTRIBUTION: Throughout temperate regions.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. 48: *pl. 42;* Atk. Stud. Am. Fungi *pl. 1, f. 1, f. 52–54;* Bres. Funghi Mang. *pl. 6;* Bull. Herb. Fr. *pl. 122;* Cooke, Brit. Fungi *pl. 117* (*5*); Dufour, Atl. Champ. *pl. 3;* Fries, Sv. Aetl. Svamp. *pl. 1;* Gibson, Edible Toadst. *pl. 4;* Gill. Champ. Fr. *pl. 8* (*12*); Krombh. Abbild. *pl. 9;* N. Marshall, Mushr. Book *pl. 3;* Richon & Roze *pl. 1;* Schaeff. Fung. Bavar. *pl. 27;* Vitt. Descr. Funghi Mang. *pl. 5;* Mycologia 5: *pl. 85, pl. 87, f. 3.*
EXSICCATI: Herpell, Präp. Hutpilze *1;* Karst. Finl. Fungi *201;* Shear, N. Y. Fungi *3, 101;* Sydow, Myc. Mar. *618, 1004, 1005, 1006, 1007, 1008;* D. Sacc. Myc. Ital. *801.*

21. **Venenarius praegemmatus** Murrill, Mycologia 4: 243. 1912.

Amanita praegemmata Murrill, Mycologia **4**: 262. 1912.

Pileus hemispheric to subexpanded, often splitting at the margin with age, scattered, reaching 6 cm. broad; surface smooth, melleous-avellaneous in the center, dark-melleous on the margin, not striate, densely covered with persistent, white, cottony, gemmate warts, the remains of the volva; lamellae free, crowded, ventricose, white; spores ovoid to subglobose, smooth, hyaline, 8–10 μ; stipe tapering upward from a bulbous base, smooth, white, reaching 7 cm. long and 1.5 cm. thick; annulus ample, white, persistent, fixed just above the middle of the stipe; volva white, 3 cm. broad, 2 cm. high, closely attached to the bulb and scarcely showing a free limb, without friable remains in the soil.

TYPE LOCALITY: Seattle, Washington.
HABITAT: In open woods.
DISTRIBUTION: Washington and Oregon.

22. **Venenarius Lanei** Murrill.

Amanita calyptrata Peck, Bull. Torrey Club **27**: 14. 1900. Not *A. calyptrata* Lam. 1778.
Venenarius calyptratus Murrill, Mycologia **4**: 241. 1912.

Pileus thick, fleshy, convex or nearly plane, 10–20 cm. broad; surface grayish-yellow or yellowish-brown tinged with green, often paler or more yellow on the margin, glabrous except near the center, where it is covered with a large, irregular, persistent, grayish-white fragment of the volva, margin striate; lamellae adnexed, forming slight decurrent lines on the stipe, crowded, yellowish-white tinged with green; spores broadly ellipsoid, smooth, hyaline, usually uninucleate, about 10×6 μ; stipe stout, rather long, equal or slightly tapering upward, white or yellowish-white with a faint greenish tint, 10–15 cm. long, 1.2–2 cm. thick; volva white or grayish-white, 0.5–1 cm. thick in the young stage, tough, breaking into large irregular fragments, most of which remain at the base of the stipe.

TYPE LOCALITY: Oregon.
HABITAT: In fir forests or their borders.
DISTRIBUTION: Oregon.

23. **Venenarius roseitinctus** Murrill, sp. nov.

Pileus convex, rarely expanded, solitary, 4–6 cm. broad; surface dry, salmon-colored, pulverulent, with volval patches that fall away very early; lamellae free, white, crowded; spores perfectly globose, smooth, hyaline, 7–9 μ; stipe cylindric and equal above, bulbous at the base, white tinged with salmon, dry, pulverulent, solid, 8–15 cm. long, 1.5–2 cm. thick; veil membranous, white tinged with salmon, superior, rarely persisting as an annulus; volva salmon-colored, fragile, not forming a cup.

Type collected in sandy soil in mixed woods at Biloxi, Mississippi, September 13, 1904, *Mrs. F. S. Earle 182*.
HABITAT: In dry pine woods or mixed woods.
DISTRIBUTION: Alabama and Mississippi.

24. **Venenarius mexicanus** Murrill, Mycologia 4: 332. 1912.

Leucomyces mexicanus Murrill, Mycologia **3**: 80. 1911.
Amanita mexicana Murrill, Mycologia **4**: 332. 1912.

Pileus convex, regular, 5 cm. broad; surface milk-white, smooth, dry, with satiny luster, adorned with patches of the membranous volva, which are 2–3 mm. broad, thin, white, separable; margin thin, entire, concolorous; context thin, white, odor distinct, pleasant; lamellae white, remote from the stipe, arcuate, narrow, crowded; spores oblong, smooth, hyaline, 4–5×2 μ; stipe cylindric, equal, white, hollow, glabrous, 4.5 cm. long, 4 mm. thick, not swollen at the base; annulus superior, membranous, ample, white, movable; volva white, circumscissile, the basal portion small, collapsed, and scarcely noticeable.

TYPE LOCALITY: Motzorongo, Mexico.
HABITAT: Rich earth in a moist virgin forest.
DISTRIBUTION: Known only from the type locality.

25. **Venenarius crenulatus** (Peck) Murrill, Mycologia 5: 77. 1913.

Amanita crenulata Peck, Bull. Torrey Club 27: 15. 1900.

Pileus thin, broadly ovoid, becoming convex or nearly plane, 2.5–5 cm. broad; surface whitish or grayish, sometimes tinged with yellow, decorated with a few thin, whitish, floccose warts, or with whitish, floccose volval patches, somewhat striate on the margin; context white, agreeable to the taste; lamellae white, crowded, reaching the stipe and sometimes forming decurrent lines, edges floccose-crenulate; spores globose, smooth, hyaline, usually uninucleate, 7.5–10 μ; stipe equal, bulbous, floccose-mealy above, white, stuffed or hollow, 2.5–5 cm. long, 6–8 mm. thick; annulus slight, evanescent; volva whitish, very thin and fragile, evanescent.

TYPE LOCALITY: Eastern Massachusetts.
HABITAT: Low ground under trees.
DISTRIBUTION: Massachusetts.

26. **Venenarius solitarius** (Bull.) Murrill, Mycologia 4: 240. 1912.

Agaricus solitarius Bull. Herb. Fr. *pl. 48*. 1780.
Agaricus solitarius Fries, Syst. Myc. 1: 17. 1821.
Agaricus strobiliformis Vitt. Descr. Funghi Mang. 59. 1835.
Agaricus echinocephalus Vitt. Descr. Funghi Mang. 346. 1835.
Agaricus polypyramis Berk. & Curt. Ann. Nat. Hist. II. 12: 417. 1853.
Agaricus monticulosus Berk. & Curt. Ann. Nat. Hist. II. 12: 418. 1853.
Agaricus daucipes Berk. & Mont; Mont. Syll. Crypt. 96. 1856.
Agaricus (Amanita) Ravenelii Berk. & Curt. Ann. Nat. Hist. III. 4: 1. 1859.
Agaricus muscarius major Peck, Ann. Rep. N. Y. State Cab. 23: 69. 1872.
Agaricus (Amanita) onustus Howe, Bull. Torrey Club 5: 42. 1874.
Agaricus (Amanita) chlorinosmus Peck; Austin, Bull. Torrey Club 6: 278. 1878.
Amanita candida Peck, Bull. Torrey Club 24: 137. 1897.
Amanita prairiicola Peck, Bull. Torrey Club 24: 138. 1897.
Amanita multisquamosa Peck, Ann. Rep. N. Y. State Mus. 53: 840. 1900.
Amanita radicata Peck, Bull. Torrey Club 27: 609. 1900.
Amanita cinereoconia Atk. Ann. Myc. 7: 366. 1909.

Pileus subglobose or convex to plane, solitary, 5–20 cm. broad; surface dry, usually white or slightly yellowish, rarely cinereous or murinous, densely pulverulent, or pelliculose adorned with seceding, angular warts that may be soft, floccose and flattened or firm and erect, often becoming glabrous with age, margin smooth, at times appendiculate; context firm, white, usually of mawkish flavor and odor resembling that of chlorin; lamellae usually adnexed and rather narrow, occasionally free and rounded behind, more or less crowded. white; spores ellipsoid, smooth, hyaline, very variable in size, 7–14 $\times$ 5–9 μ; stipe subequal, usually radicate, bulbous or enlarged or equal below, concolorous or paler, mealy above, squamulose or imbricate-squamose below, solid or slightly spongy, 4–15 cm. long, 1–4 cm. thick; annulus white, apical, fragile or lacerate, often appendiculate or evanescent; volva white, usually friable, rarely remaining as concentric, margined scales or a short limb at the base of the stipe.

TYPE LOCALITY: Europe.
HABITAT: Open ground or in thin woods.
DISTRIBUTION: New York to Alabama and west to California; also in Europe.
ILLUSTRATIONS: Atk. Stud. Am. Fungi *f. 75, 76;* Barla, Champ. Nice *pl. 4, f. 5–8, pl. 4²;* Boudier, Ic. Myc. 1: *pl. 3, 4;* Bres. Funghi Mang. *pl. 8;* Bull. Herb. Fr. *pl. 48, 593;* Cooke, Brit. Fungi *pl. 8 (8), 277 (9);* Gill. Champ. Fr. *pl. 12 (20), 13 (8);* Vitt. Descr. Funghi Mang. *pl. 9;* Ann. Rep. N. Y. State Mus. 53: *pl. B, f. 1–7.*

DOUBTFUL SPECIES

Amanita abrupta Peck, Bull. Torrey Club 24: 138. 1897. Known only from specimens collected by Underwood and Baker in woods near Auburn, Alabama. It is near *Venenarius solitarius*, but the slender stipe terminated below by a large subglobose bulb distinguishes it from the forms of that species with which I am familiar. It is very desirable that fresh specimens be obtained and color sketches or photographs be made from them for comparison with *V. solitarius* and *V. cothurnatus*.

Agaricus bulbosus vernus Bull. Herb. Fr. *pl. 108*. 1782. It is doubtful whether this is really distinct from *Venenarius phalloides*, although some European mycologists maintain that the spores are different. I have been unable to find any North American specimens that could not be referred to the white form of *V. phalloides*.

Lepiota drymonia Morgan, Jour. Myc. 13: 13. 1907. Collected in Vermont, on the ground in woods. Probably a form of *Venenarius solitarius*.

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一九五五年叁月卅日

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VOLUME 10 PART 2

NORTH AMERICAN FLORA

(AGARICALES)

AGARICACEAE (pars)

AGARICEAE (pars)

WILLIAM ALPHONSO MURRILL

PUBLISHED BY

THE NEW YORK BOTANICAL GARDEN

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ANNOUNCEMENT

NORTH AMERICAN FLORA is designed to present in one work descriptions of all plants growing, independent of cultivation, in North America, here taken to include Greenland, Central America, the Republic of Panama, and the West Indies, except Trinidad, Tobago, and Curaçao and other islands off the north coast of Venezuela, whose flora is essentially South American

The work will be published in parts at irregular intervals, by the New York Botanical Garden, through the aid of the income of the David Lydig Fund bequeathed by Charles P. Daly.

It is planned to issue parts as rapidly as they can be prepared, the extent of the work making it possible to commence publication at any number of points. The completed work will form a series of volumes with the following sequence:

Volume 1. Myxomycetes, Schizophyta, Diatomaceae.

Volumes 2 to 10. Fungi.

Volumes 11 to 13. Algae.

Volumes 14 and 15. Bryophyta.

Volume 16. Pteridophyta and Gymnospermae.

Volumes 17 to 19. Monocotyledones.

Volumes 20 to 34. Dicotyledones.

The preparation of the work has been referred by the Scientific Directors of the Garden to a committee consisting of Dr. N. L. Britton, Dr. W. A. Murrill, and Dr. J. H. Barnhart.

Professor George F. Atkinson, of Cornell University; Professor John M. Coulter, of the University of Chicago; Mr. Frederick V. Coville, of the United States Department of Agriculture; Professor Byron D. Halsted, of Rutgers College; and Professor William Trelease, of the University of Illinois, have consented to act as an advisory committee.

Each author will be wholly responsible for his own contributions, being restricted only by the general style adopted for the work, which must vary somewhat in the treatment of diverse groups.

The subscription price is fixed at $1.50 for each part; it is expected that four or five parts will be required for each volume. A limited number of separate parts will be sold at $2.00 each. Address:

THE NEW YORK BOTANICAL GARDEN

BRONX PARK

NEW YORK CITY

Amanita elliptosperma Atk. Ann. Myc. **7**: 336. 1909. Described from Chapel Hill, North Carolina. Resembling white forms of *Venenarius phalloides,* but said to have ellipsoid spores.

Amanita elongata Peck, Bull. N. Y. State Mus. 131: 33. 1909. Described from specimens collected by Sterling in Pennsylvania, July, 1907, on damp grassy ground in the borders of woods. Resembling *Vaginata albocreata*, but having a well-developed annulus. From yellow forms of *Venenarius phalloides,* it differs in its very long, slender stipe and the absence of a free limb to the volva. In color and general appearance, except the long stipe, it greatly resembles *Venenarius Frostianus.* Further field studies are highly desirable.

Lepiota gemmata Morgan, Jour. Myc. **12**: 202. 1906. Collected near Preston, Ohio, on rich soil or rotten wood. Probably a form of *Venenarius solitarius.*

Amanita junquillea Quél. Bull. Soc. Bot. Fr. **23**: 324. *pl. 3, f. 10.* 1876. Held by some to be equivalent to *Venenarius russuloides*, but there seems to be little foundation for this opinion.

Amanita magnivelaris Peck, Ann. Rep. N. Y. State Mus. **50**: 96. 1898. Described from Port Jefferson, New York, and said by the author to differ from *Amanita verna* in its large, persistent annulus; its elongate, downwardly tapering bulb; and especially in its ellipsoid spores.

Amanita mappa Fries, Epicr. Myc. 6. 1838.

Agaricus pantherinus DC. Fl. Fr. **6**: 52. 1815. *Venenarius pantherinus* Murrill, Mycologia **5**: 80. 1913. Described from France, and found in woods and groves throughout Europe and parts of Asia. I have been unable to find any typical specimens from this country. In the case of *V. phalloides*, we have white and dark forms abundantly represented, and it would seem natural to expect the dark forms of *V. pantherinus* also if the species occurs here. Beardslee has studied *V. cothurnatus* in North Carolina and *V. pantherinus* in Sweden, and he believes the two to be identical. He found the spores of both species to be globose in fresh specimens, changing to ellipsoid after the dried plants were kept for several weeks. *Amanita umbrina* Pers. Syn. Fung. 254. 1801 refers to the usual dark European form of this species. DeCandolle evidently did not use Persoon's name in *Agaricus* because it was preoccupied in that genus.

Amanita submaculata Peck, Bull. Torrey Club **27**: 609. 1900. Known only from a single specimen, accompanied by a sketch, sent to Dr. Peck from North Carolina by Miss Wilson, who, pronouncing it edible, must have collected more than one hymenophore. If it had not been pronounced edible, I should be inclined to classify it as a dark-centered form of *Venenarius phalloides*, in which most of the volva had been carried up on the surface of the cap. The type is sterile, and further field study of the plant is highly desirable.

Agaricus virosus Fries, Epicr. Myc. 6. 1838. This species has often been confused with white forms of *Venenarius phalloides*, from which it is said to differ in its strong odor and rough stipe.

Subtribe 2. PLUTEANAE*

Pileus irregular, dimidiate or resupinate.	52. CLAUDOPUS.
Pileus regular, sometimes eccentric in *Pleuropus*.	
Volva and annulus wanting.	
Stipe cartilaginous.	
Margin of pileus incurved when young.	
Lamellae decurrent.	53. ECCILIA.
Lamellae adnate or adnexed.	54. LEPTONIELLA.
Margin of pileus straight and appressed when young; lamellae free or adnexed.	55. NOLANEA.
Stipe fleshy.	
Lamellae decurrent, rarely varying to adnate.	56. PLEUROPUS.
Lamellae sinuate or adnexed.	
Spores not angular, rosy-ochraceous in mass.	57. LEPISTA.
Spores angular, rose-colored in mass.	58. ENTOLOMA.
Lamellae free.	59. PLUTEUS.
Volva wanting, annulus present.	60. CHAMAEOTA.
Volva present, annulus wanting.	61. VOLVARIOPSIS.

*See N. AM. FLORA **9**: 237 for a key to the four subtribes of the Agariceae. The Pluteanae are distinguished by their spores, which are rosy or rosy-ochraceous in mass and often angular in outline.

52. CLAUDOPUS (W. G. Smith) Gill. Champ. Fr. 426. 1876.

Agaricus § *Claudopus* W. G. Smith, Clavis Agar. 17. 1870.
Dochmiopus Pat. Hymén. Eur. 113. 1887.
Octojuga Fayod, Ann. Sci. Nat. VII. 9: 390. 1889.

Pileus fleshy, putrescent, irregular, dimidiate or resupinate; spores pink or salmon-colored; stipe lateral or wanting, rarely eccentric; veil none.

Type species, *Claudopus variabilis* (Pers.) Gill.

Pileus pure-white, unchanging with age.	
Pileus 1–4 mm. broad.	1. *C. subdepluens.*
Pileus 1–2.5 cm. broad.	2. *C. multiformis.*
Pileus white or whitish, becoming pinkish or grayish, 1–2.5 cm. broad.	3. *C. depluens.*
Pileus greenish-white when young, dull-white or yellowish-white when old, 2.5–5 cm. broad.	4. *C. mephiticus.*
Pileus bright-yellow or bright-tawny-orange.	
Pileus reaching 2 cm. broad; spores globose.	5. *C. subnidulans.*
Pileus reaching 5 cm. broad; spores curved-rod-shaped.	6. *C. nidulans.*
Pileus gray, grayish-cinnamon, avellaneous, or brown.	
Pileus pale-avellaneous; stipe grayish, 5 mm. long.	7. *C. avellaneus.*
Pileus differently colored; stipe shorter.	
Pileus grayish-cinnamon.	8. *C. greigensis.*
Pileus grayish-brown.	9. *C. byssoideus.*

1. Claudopus subdepluens M. Fitzpatrick, Mycologia 7: 37. 1915.

Pileus convex to expanded, minute, 1–4 mm. broad; surface white, minutely tomentose, margin sulcate; lamellae at first white, becoming salmon-colored, distant, adnate, entire on the edges; spores angular, uniguttulate, rarely 2-guttulate, rose-colored, 7–12 × 6–8 μ; stipe white, lateral, flexible, about 2 mm. long, not more than 0.5 mm. thick.

TYPE LOCALITY: Six Mile Gorge, Ithaca, New York.
HABITAT: Parasitic on *Coltricia perennis.*
DISTRIBUTION: Known only from the type locality.

2. Claudopus multiformis Murrill.

Agaricus variabilis Pers. Obs. Myc. 2: 46. 1799. Not *A. variabilis* Batsch, 1783.
Claudopus variabilis Gill. Champ. Fr. 426. 1876.

Pileus fleshy, resupinate to reflexed, 1–2.5 cm. broad; surface white, smooth, tomentose; lamellae distant, broad, white to red; spores ellipsoid, pale-red, 6–7 × 2.5–4 μ; stipe eccentric or wanting, short, incurved, villose.

TYPE LOCALITY: Europe.
HABITAT: On decayed wood, usually spruce.
DISTRIBUTION: Massachusetts and North Carolina; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 344a (371)*; Gill. Champ. Fr. *pl. 286 (95)*; Hussey, Ill. Brit. Myc. 1: *pl. 50*; Pat. Tab. Fung. 1: *f. 225, 226*; Pers. Obs. Myc. 2: *pl. 5, f. 12.*
EXSICCATI: Romell, Fungi Scand. *108* (as *C. sessilis*); Roum. Fungi Gall. *2606*; Thüm. Myc. Univ. *401*; Westend. & Wall. Herb. Crypt. *1283.*

3. Claudopus depluens (Batsch) Gill. Champ. Fr. 427. 1876.

Agaricus depluens Batsch, Elench. Fung. Contin. 1: 167. 1786.
Agaricus epigaeus Pers. Obs. Myc. 2: 47. 1799.

Pileus thin, at first resupinate, becoming reflexed, variable in form, sessile or with a short stipe, 1–2.5 cm. broad; surface slightly silky-tomentose, especially toward the base, white or whitish, becoming pink or sometimes tinged with red or gray; lamellae broad, subdistant, whitish, becoming pink; spores angular, usually containing a single large nucleus, 10–11 × 7.5 μ.

TYPE LOCALITY: Bavaria.
HABITAT: On moist shaded ground or among mosses, sometimes on dead wood or sawdust.
DISTRIBUTION: New York to South Carolina in the eastern United States; also in Europe.
ILLUSTRATIONS: Batsch, Elench. Fung. *f. 122*; Cooke, Brit. Fungi *pl. 344b (371)*; Pat. Tab. Fung. *f. 431.*
EXSICCATI: Sydow, Myc. Mar. *4002.*

4. Claudopus mephiticus Murrill, Mycologia 7: 290. 1915.

Pileus eccentric, convex to nearly plane, somewhat depressed at the center, cespitose, 2.5–5 cm. broad; surface dry, glabrous, slightly concentrically sulcate, greenish-white when

young, dull-white or yellowish-white when old, margin concolorous, undulate; context white, with a very decided mephitic or garlic odor and taste; lamellae sinuate, subdistant, broad, slightly serrate on the edges, white, becoming rose-colored at maturity; spores angular, rose-colored, uniguttulate, 9 × 7 μ; stipe short, subcylindric, very eccentric, solid, pruinose, white, 1–1.5 cm. long, 4–6 mm. thick.

TYPE LOCALITY: Minnehaha Park, Minneapolis, Minnesota.
HABITAT: On fallen dead branches.
DISTRIBUTION: Known only from the type locality.

5. **Claudopus subnidulans** Overholts, Ann. Mo. Bot. Gard. **3**: 195. 1916.

Pileus sessile, reniform or dimidiate in outline, convex, 0.5–2 cm. broad; surface dry, fibrillose-tomentose, bright-tawny-orange, margin inrolled, even or slightly striate; context thin, white, the odor and taste none; lamellae radiating from the point of attachment to the pileus, of medium distance, rather broad, 3–5 mm., salmon-colored or dull-orange; spores globose, smooth salmon-colored, 5–7 μ; stipe none, the pileus attached by a white, tomentose base.

TYPE LOCALITY: Jefferson Barracks, near St. Louis, Missouri.
HABITAT: On rotten logs in damp woods.
DISTRIBUTION: Known only from the type locality.

6. **Claudopus nidulans** (Pers.) P. Karst. Bidr. Finl. Nat. Folk **32**: 288. 1879.

Agaricus nidulans Pers. Ic. Descr. Fung. 19. 1798.
Agaricus dorsalis Bosc, Ges. Nat. Freunde Berlin Mag. **5**: 85. 1811.

Pileus sessile or narrowed to a very short stipe, reniform to circular, usually imbricate, reaching 5 cm. or more broad; surface dry, tomentose or somewhat hirsute. bright-yellow, margin involute; context slightly tough; spores minute and very peculiar, resembling some bacteria, curved-rod-shaped, smooth, rose-colored in mass, 3–5 × 1 μ.

TYPE LOCALITY: Europe.
HABITAT: On decaying wood of both deciduous and coniferous trees.
DISTRIBUTION: Canada to Florida and west to Oregon; also in Europe.
ILLUSTRATIONS: Atk. Stud. Am. Fungi ed. 1. *f. 141;* ed. 2. *f. 144;* Ges. Nat. Freunde Berlin Mag. **5**: *pl. 4;* Mycologia **6**: *pl. 113, f. 6;* Pers. Ic. Descr. Fung. *pl. 6, f. 4.*
EXSICCATI: Ellis, N. Am. Fungi *913* (as *Panus dorsalis*); Rav. Fungi Am. *103;* Rav. Fungi Car. **1**: *5* (as *Panus foetens*); **2**: *13;* Roum. Fungi Sel. *6769.*

7. **Claudopus avellaneus** Murrill, sp. nov.

Pileus thin, very eccentric, convex, depressed behind, gregarious, 1 cm. broad; surface smooth, finely tomentose, pale-avellaneous, margin very thin, concolorous, inflexed; lamellae adnate, broad, distant, white to salmon-colored, entire and concolorous on the edges; spores ovoid, irregular, angular, apiculate, uniguttulate, rose-colored, 8–10 × 5–6 μ; stipe short, much enlarged above, smooth, grayish, densely tomentose, about 5 mm. long, 1–2 mm. thick.

Type collected on dead wood at Glen Brook, Oregon, November 7, 1911, *W. A. Murrill 779* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

8. **Claudopus greigensis** (Peck) Sacc. Syll. Fung. **5**: 735. 1887.

Agaricus greigensis Peck, Ann. Rep. N. Y. State Mus. **24**: 69. 1872.

Pileus very thin, convex, 1–2 cm. broad; surface hygrophanous, grayish-cinnamon and striatulate when moist, silky-fibrillose when dry; lamellae subdistant, scarcely reaching the stipe, grayish, becoming dingy-pink; spores angular, usually containing a single large nucleus, 8.5–11 × 7.5 μ; stipe short, solid, curved, fibrillose below, with an abundant white, radiating mycelium at the base, about 2 mm. long.

TYPE LOCALITY: Greig, New York.
HABITAT: On much decayed wood.
DISTRIBUTION: New York.

9. Claudopus byssoideus (Pers.) Murrill.

Agaricus byssoideus Pers. Ic. Descr. Fung. 56. 1800.
Agaricus byssisedus Pers. Syn. Fung. 482. 1801.
Claudopus byssisedus Gill. Champ. Fr. 427. 1876.

Pileus very thin, at first resupinate, becoming reflexed, nearly plane, 1–2 cm. broad; surface glabrous or merely pruinose with a slight grayish villosity, gray, grayish-brown, or brown; lamellae rather broad, subdecurrent, grayish, becoming tinged with pink; spores angular, 10–11 x 7.5 μ; stipe short, lateral or eccentric, generally curved, with white, radiating, byssoid fibrils at the base.

TYPE LOCALITY: Europe.
HABITAT: On decaying wood.
DISTRIBUTION: New York and Pennsylvania; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 344c (371)*; Pat. Tab. Fung. *f. 432*; Pers. Ic. Descr. Fung. *pl. 14, f. 4.*
EXSICCATI: Sydow, Myc. Mar. *2301.*

53. ECCILIA (Fries) Quél. Champ. Jura Vosg. 90. 1872.

Agaricus § *Eccilia* Fries, Syst. Myc. 1: 207. 1821.
Hyporhodius Schroet. Krypt.-Fl. Schles. 3^1: 613. 1889.

Pileus thin, fleshy, putrescent, the margin at first incurved; lamellae decurrent; spores pink or salmon-colored, usually angular; stipe central, slender, tubular, with cartilaginous cortex; veil none.

Type species, *Eccilia atrides* (Lasch) Quél.

I. SPECIES OCCURRING IN TEMPERATE NORTH AMERICA, EXCEPT THOSE CONFINED TO THE PACIFIC COAST

Pileus white.	
Stipe 2.5–3.5 cm. long.	1. *E. nivea.*
Stipe 4–6 cm. long.	2. *E. roseoalbocitrina.*
Pileus yellowish-white.	3. *E. cinericola.*
Pileus pale-yellow.	4. *E. flavida.*
Pileus isabelline or yellowish-brown, 1–2.5 cm. broad.	
Lamellae narrow.	5. *E. angustifolia.*
Lamellae broad.	
Pileus dark-isabelline, pale-chestnut on drying.	6. *E. tenuipes.*
Pileus yellowish-brown, brownish-orange on drying.	7. *E. unicolor.*
Pileus dull-reddish-brown, 2–5 cm. broad.	8. *E. mordax.*
Pileus mouse-colored.	
Stipe 2–3 cm. long.	9. *E. pentagonospora.*
Stipe 3–5 cm. long.	10. *E. rhodocylicioides.*
Pileus grayish-brown or avellaneous.	
Pileus 1 cm. broad.	11. *E. parvula.*
Pileus 4–6 cm. broad.	12. *E. pungens.*
Pileus dark-brown or blackish.	
Stipe green.	13. *E. Housei.*
Stipe brownish or blackish.	
Lamellae blackish on the edges.	
Pileus 2–2.5 cm. broad; stipe 2 mm. or less thick.	14. *E. fuliginosa.*
Pileus 2.5–3.5 cm. broad; stipe 2–4 mm. thick.	15. *E. atrides.*
Lamellae not blackish on the edges.	
Stipe 1–2 mm. thick.	
Stipe 2.5 cm. long.	16. *E. Watsoni.*
Stipe 3.5–5 cm. long.	17. *E. sphagnophila.*
Stipe 5–6 mm. thick.	18. *E. pyrina.*

II. SPECIES CONFINED TO THE PACIFIC COAST

Stipe 1.5–3 cm. long; pileus grayish-brown or blackish.	
Pileus grayish-brown, reaching 2.5 cm. broad.	19. *E. californica.*
Pileus grayish-black, reaching 3.5 cm. broad.	20. *E. nigricans.*
Stipe 4–6 cm. long; pileus dark-lavender.	21. *E. Yatesii*

III. SPECIES CONFINED TO TROPICAL NORTH AMERICA

Pileus tan-colored.	
Pileus 1 cm. broad; stipe 2 cm. long.	22. *E. cubensis.*
Pileus 2 cm. broad; stipe 4 cm. long.	23. *E. Earlei.*
Pileus pale-blue.	24. *E. mexicana.*
Pileus blackish.	25. *E. jamaicensis.*

1. **Eccilia nivea** Peck, Ann. Rep. N. Y. State Mus. **49**: 18. 1897.

Eccilia subacus Peck, Bull. Torrey Club **34**: 100. 1907.

Pileus thin, submembranous, hemispheric or very convex, slightly umbilicate, 1–2.5 cm. broad; surface smooth, finely appressed-fibrillose, white; lamellae thin, rather broad, distant, arcuate, short-decurrent, white, becoming salmon-colored; spores ellipsoid, angular, uniguttulate, rose-colored, 10–12 × 6–8 μ; stipe slender, fragile, equal or slightly tapering upward, glabrous, stuffed or hollow, white, 2–5 cm. long, 1–2 mm. thick

Type locality: Selkirk, New York.
Habitat: On the ground in woods or thickets.
Distribution: New England and New York.

2. **Eccilia roseoalbocitrina** Atk. Ann. Myc. **7**: 369. 1909.

Pileus strongly convex when young, slightly depressed at the center, becoming expanded with the margin strongly upturned with age, thin, 1–2.5 cm. broad; surface minutely silky with loose, delicate threads, smooth, entirely white, sometimes faintly tinged with yellow at the center; lamellae at first white, then pale-rose-colored or becoming buff on drying, adnate or decurrent, subdistant, slightly ventricose; spores elongate, angular, pale-flesh-colored, 9–11 × 6–9 μ; stipe smooth, hollow, cartilaginous, covered with a delicate, white, velvety tomentum when young, the apex mealy, with tufts of clavate cells when old, 4–6 cm. long, 2–3.5 mm. thick.

Type locality: Cayuga Lake, Ithaca, New York.
Habitat: On the ground.
Distribution: Known only from the type locality.

3. **Eccilia cinericola** Peck, Bull. Torrey Club **34**: 347. 1907.

Pileus thin, fragile, broadly convex, becoming expanded and broadly umbilicate or centrally depressed, 1.2–2.5 cm. broad; surface glabrous, slightly scabrous, white tinged with yellow, becoming cream-colored with age; lamellae thick, distant, broad, adnate or slightly decurrent, sometimes slightly sinuate, white, becoming pink, dusted with the spores; spores subglobose, angular, 10–12 × 8–10 μ; stipe subcartilaginous, fragile, hollow, slightly enlarged at the apex, white at first, becoming colored like the pileus, 2–2.5 cm. long, 2 mm. thick.

Type locality: Boston, Massachusetts.
Habitat: Gravelly ground among grasses, especially where coal ashes have been lying for a long time.
Distribution: Known only from the type locality.

4. **Eccilia flavida** Peck, Bull. Torrey Club **36**: 153. 1909.

Pileus thin, convex, umbilicate, 2–2.5 cm. broad; surface glabrous, pale-yellow, obscurely striate when dry; lamellae thin, somewhat crowded, decurrent; spores subglobose, angular, 8–12 × 6–8 μ; stipe slender, glabrous, hollow, concolorous or a little paler, commonly with white mycelium at the base, 2.5–3.5 cm. long, 1.5–2 mm. thick.

Type locality: Stow, Massachusetts.
Distribution: Vicinity of Stow, Massachusetts.

5. **Eccilia angustifolia** Murrill, sp. nov.

Pileus thin, regular, convex-umbilicate, not expanding, solitary, 1.5–2 cm. broad; surface glabrous, uniformly tan-colored, pale-chestnut in dried specimen, striate, margin entire, concolorous; lamellae short-decurrent, subdistant, narrow, several times inserted, white to salmon-colored, entire and concolorous on the edges; spores broadly ellipsoid, angular, obliquely apiculate, rose-colored, 10.5 × 9 μ; stipe long, slender, equal, smooth, glabrous, solid, pale-fuliginous, 4–5 cm. long, reaching 2 mm. thick.

Type collected on the ground in moss at West Park, New York, August 9, 1903, *F. S. Earle 1832* (herb. N. Y. Bot. Gard.).
Distribution: Known only from the type locality.

6. **Eccilia tenuipes** Murrill, sp. nov.

Pileus convex-umbilicate, regular in shape, gregarious, 1.5 cm. broad; surface glabrous, tan-colored, pale-chestnut in dried specimens, margin concolorous, entire, deeply striate; lamellae rather broad, subcrowded, decurrent, pallid to salmon-colored, concolorous and entire on the edges; spores ellipsoid, angular, obliquely apiculate, rose-colored, 10–12.5 × 6–8 μ; stipe long and slender, tubular, equal, smooth, glabrous, concolorous, 6 cm. long, 1 mm. thick.

Type collected on the ground in oak woods at Bound Brook, New Jersey, July 6, 1903, *F. S. Earle 1466* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

7. **Eccilia unicolor** Peck, Bull. Torrey Club **34**: 99. 1907.

Pileus thin, submembranous, conic or very convex, becoming expanded, umbilicate, 1–2.5 cm. broad; surface glabrous, silky, shining, hygrophanous, yellowish-brown and striatulate on the margin when moist, becoming paler or brownish-orange on drying; lamellae unequal, thin, narrow, crowded, arcuate, decurrent, sometimes serrate on the edges, concolorous; spores angular, uniguttulate, 8–12 × 6–8 μ; stipe externally cartilaginous, straight or flexuous, glabrous, shining, stuffed, pruinose at the apex, concolorous or a little paler, with a whitish, mycelioid tomentum at the base, 3–6 cm. long, 1–3 mm. thick.

TYPE LOCALITY: Falmouth, Massachusetts.
HABITAT: Gravelly soil in waste places.
DISTRIBUTION: Known only from the type locality.

8. **Eccilia mordax** Atk. Jour. Myc. **8**: 113. 1902.

Pileus convex, umbilicate, usually gregarious, 2–5 cm. broad; surface smooth, dull-reddish-brown or pale-chestnut-colored, hygrophanous, tough, rarely cracking radially, margin inrolled; context thin, dirty-white, the taste at first not marked, but after 15 or 20 minutes leaving a burning sensation in the throat which often lasts 24 hours; lamellae dirty-flesh-colored, adnate to slightly decurrent, not crowded; spores ovoid, pale-flesh-colored, 6–7 × 4–5 μ; stipe concolorous, cartilaginous, tough, fistulose, smooth, often compressed, 5–7 cm. long, 3–5 mm. thick.

TYPE LOCALITY: McGowan's woods, Ithaca, New York.
HABITAT: On the ground.
DISTRIBUTION: Known only from the type locality.

9. **Eccilia pentagonospora** Atk. Jour. Myc. **8**: 113. 1902.

Pileus umbilicate to infundibuliform, very thin, gregarious, 0.5–1.5 cm. broad; surface fibrous-striate, smooth or very minutely roughened, mouse-gray to light-gray; lamellae decurrent, ascending, not very crowded, flesh-colored, 2–4 mm. broad; spores pink, subquadrate, prominently 4–5-angled, usually 5-angled, 6–10 μ in diameter; stipe concolorous, white within, cylindric, even, solid, sometimes with delicate white threads at the base, 2–3 cm. long, 1–2 mm. thick.

TYPE LOCALITY: Ithaca, New York.
HABITAT: On a lawn.
DISTRIBUTION: Known only from the type locality.

10. **Eccilia rhodocylicioides** Atk. Jour. Myc. **8**: 113. 1902.

Pileus small, convex, umbilicate, gregarious or slightly cespitose, 5–12 mm. broad; surface mouse-colored, finely floccose-scaly at the center, margin faintly striate, thin; lamellae arcuate, distant, decurrent, bristling with white cystidia under a lens, slightly paler than the pileus and tinged with flesh-color; spores quadrate to subquadrate, 8–10 μ; stipe cartilaginous, hollow, concolorous except at the apex. where it is paler, 3–5 cm. long, 1–2 mm. thick.

TYPE LOCALITY: McGowan's woods, Ithaca, New York.
HABITAT: On the ground.
DISTRIBUTION: Known only from the type locality.

11. **Eccilia parvula** Murrill, sp. nov.

Pileus thin, umbilicate-expanded, solitary, 1 cm. broad; surface dry, densely fibrillose, uniformly grayish-brown, margin incurved, concolorous, not striate; lamellae conspicuously

decurrent, very distant, rather broad, thin, pallid to salmon-colored, undulate and concolorous on the edges; spores subglobose, angular, apiculate, rose-colored, 7–9 μ; stipe tapering downward, subconcolorous, darker below, glabrous, smooth, 1.5 cm. long, 2 mm. thick.

Type collected on the ground in woods in the New York Botanical Garden, July 8, 1902, *F. S. Earle 318* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

12. Eccilia pungens Murrill, sp. nov.

Pileus convex, not fully expanding, deeply umbilicate, gregarious, 4–6 cm. broad; surface smooth, glabrous, hygrophanous, avellaneous, somewhat striate with darker lines, margin incurved, concolorous, at first entire, becoming conspicuously lobed or plicate with age; context thin, pallid, with a sweetish, pungent taste and a distinct odor of chloride of lime; lamellae short-decurrent, subdistant, arcuate or plane, many times inserted, white to salmon-colored, entire and concolorous on the edges; spores broadly ellipsoid, angular, apiculate, uniguttulate, rose-colored, 8–10 × 7 μ; stipe equal, compressed, solid, smooth, glabrous, subconcolorous, 4–5 cm. long, 4–5 mm. thick.

Type collected in soil in damp deciduous woods in the New York Botanical Garden, August 10, 1915, *W. A. Murrill* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

13. Eccilia Housei Murrill, sp. nov.

Leptonia euchlora House, Bull. N. Y. State Mus. 188: 33. 1917. Not *L. euchlora* Quél. 1872.

Pileus submembranous, campanulate, becoming deeply depressed at the center, cespitose, about 2 cm. broad; surface blackish with a fumosous tint, radiately furrowed and streaked with paler tints, minutely tawny-fibrillose and roughened but scarcely squamulose, margin somewhat irregular; context very thin, pallid; lamellae narrow, decurrent, rather distant, pallid or slightly yellowish when young, soon becoming salmon-colored; spores ellipsoid, angular, obliquely apiculate, rose-colored, 9–11 × 6–7 μ; stipe slender, hollow, grass-green, slightly fibrillose, 2–4 cm. long, 2–3 mm. thick.

Type collected in damp clay soil in deciduous thickets at Green Lake near Kirkville, Onondaga County, New York, June 6, 1914, *H. D. House 14.16* (herb. N. Y. State Mus.).
DISTRIBUTION: Northern New York.

14. Eccilia fuliginosa Murrill, sp. nov.

Pileus thin, convex-umbilicate, not expanding, gregarious, 2–2.5 cm. broad; surface squamulose, fuliginous, striate, the disk more densely squamulose and nearly black in dried specimens, margin entire, concolorous, incurved; lamellae short-decurrent, subdistant, rather broad, several times inserted, pallid to salmon-colored, fuliginous and floccose on the edges; spores ellipsoid, angular, apiculate, 8–10 × 6–7 μ; stipe long and slender, cylindric, glabrous, concolorous, solid, 4–6 cm. long, reaching 2 mm. thick.

Type collected on the ground in wet woods at West Park, New York, August 9, 1903, *F. S. Earle 1838* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

15. Eccilia atrides (Lasch) Quél. Champ. Jura Vosg. 90. 1872.

Agaricus atrides Lasch, Linnaea 4: 539. 1829.

Pileus subfleshy-membranous, hemispheric to convex, becoming plane, deeply umbilicate, subgregarious, 2.5–3 cm. broad; surface substriate, silky-shining, black or gray, darker and squamulose toward the disk, margin striate; lamellae attenuate, subdecurrent, thin, at length denticulate, subcrowded, pallid, black on the edges; spores broadly ellipsoid, angular, obliquely apiculate, uniguttulate, rose-colored, 8–10 × 7–8 μ; stipe subequal, hollow, subconcolorous, finely black-punctate, especially at the apex, fibrillose at the base, 5–7 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Germany.
HABITAT: In moist, shady places among mosses or ferns, sometimes on dead wood.
DISTRIBUTION: New England to North Carolina and west to Michigan; also in Europe.
ILLUSTRATION: Quél. Champ. Jura Vosg. *pl. 6, f. 3.*

16. **Eccilia Watsoni** (Peck) Sacc. Syll. Fung. **5**: 732. 1887.

Agaricus Watsoni Peck, Ann. Rep. N. Y. State Mus. **28**: 48. 1876.

Pileus hemispheric or convex, umbilicate, 1–2 cm. broad; surface striatulate, brown, darker and rough with minute blackish-brown scales on the umbilicus; lamellae distant, arcuate, decurrent, whitish, becoming flesh-colored; spores angular, generally uninucleate, 8.5–10 μ in diameter; stipe equal, smooth, shining, brownish or pallid, 2.5 cm. long, 1–2 mm. thick.

TYPE LOCALITY: Northampton, Fulton County, New York.
HABITAT: On the ground in woods.
DISTRIBUTION: New York and Massachusetts.

17. **Eccilia sphagnophila** Peck, Ann. Rep. N. Y. State Mus. **54**: 147. 1901.

Pileus hemispheric or umbonate-turbinate, 8–16 mm. broad; surface glabrous, dark-brown, striate on the margin; lamellae broad, distant, very decurrent, whitish, becoming slightly tinged with pink; spores angular, 7.5–12.5 × 6–7.5 μ; stipe slender, glabrous, concolorous, 3.5–5 cm. long, 1 mm. thick.

TYPE LOCALITY: Floodwood, New York.
HABITAT: In marshes among sphagnum.
DISTRIBUTION: New York.
ILLUSTRATION: Ann. Rep. N. Y. State Mus. **54**: *pl. I, f. 20–23.*

18. **Eccilia pyrina** (Berk. & Curt.) Sacc. Syll. Fung. **5**: 732. 1887.

Agaricus pyrinus Berk. & Curt. Ann. Mag. Nat. Hist. III. **4**: 291. 1859.

Pileus at first broadly convex, expanding, umbilicate, 2.5 cm. broad; surface dark-brown at the center, gray at the crenate margin; context with the odor of ripe pears; lamellae slightly decurrent, whitish; spores irregular, angular; stipe hollow, at length compressed, 4 cm. long. 5–6 mm. thick.

TYPE LOCALITY: Massachusetts.
HABITAT: In swamps.
DISTRIBUTION: Massachusetts.

19. **Eccilia californica** Murrill, sp. nov.

Pileus convex-umbilicate, not expanding, regular, thin, gregarious, 1.5–2.5 cm. broad; surface dry, smooth, glabrous, uniformly grayish-brown, margin entire, concolorous, inflexed; context grayish-brown, with nutty taste; lamellae decurrent, inserted, broad, crowded, white to salmon-colored, entire and concolorous on the edges; spores broadly ellipsoid, angular, uniguttulate, rose-colored, 8–9 × 7 μ; stipe short, equal or slightly enlarged above, solid, smooth, glabrous, grayish-brown, 1.5–3 cm. long, 1–2 mm. thick.

Type collected among grass in rich ground at Madera Creek, near Stanford University, California, December 21, 1902, *James McMurphy 53* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

20. **Eccilia nigricans** Peck, Bull. Torrey Club **22**: 201. 1895.

Pileus thin, convex, umbilicate or centrally depressed, 1.5–3.5 cm. broad; surface subzonate, unpolished, finely tomentose, grayish-black; context with the odor and taste of butternuts; lamellae broad, distant, decurrent, light-drab or brownish, becoming tinged with flesh-color; spores angular, uninucleate, 10 μ long and nearly as broad; stipe short, hollow, grayish-black, usually with abundant white mycelium, about 2.5 cm. long, 1–2 mm. thick.

TYPE LOCALITY: Pasadena, California.
HABITAT: On grassy ground.
DISTRIBUTION: Southern California.

21. **Eccilia Yatesii** Murrill, sp. nov.

Pileus convex-umbilicate, not expanding, solitary, 2–5 cm. broad; surface smooth, glabrous, uniformly dark-lavender, margin entire, concolorous, inflexed; context white; lamellae de-

current, broad, arcuate, distant, pallid to salmon-colored, entire and concolorous on the edges; spores ellipsoid, angular, apiculate, uniguttulate, rose-colored, 8–10 × 7 μ; stipe equal, smooth, glabrous, hollow, pale-lavender, 4–6 cm. long, 2–5 mm. thick.

Type collected on the ground under redwoods in Muir Woods, near San Francisco, California, January 5, 1914, *H. S. Yates 97* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

22. **Eccilia cubensis** Murrill, Mycologia 3: 273. 1911.

Pileus convex, 1 cm. broad; surface dark-tan, darker at the disk, innate-scaly, not striate; lamellae decurrent, rather distant, broad, dirty-white to slightly pinkish; spores octahedral, irregular, 7–9 μ; stipe cylindric, paler than the pileus, slightly granular-floccose, 2 cm. long, 1 mm. thick.

TYPE LOCALITY: Herradura, Cuba.
HABITAT: In a thicket on the bank of a stream.
DISTRIBUTION: Known only from the type locality.

23. **Eccilia Earlei** Murrill, Mycologia 3: 274. 1911.

Pileus thin, convex-umbilicate, 2 cm. broad; surface pale-tan, fibrillose-scaly, margin thin, substriate; lamellae decurrent, distant, broad, subarcuate, yellow to pinkish; spores irregularly angled, 7–9 μ; stipe cylindric, hollow, glabrous, dull-yellow, 4 cm. long, 2 mm. thick.

TYPE LOCALITY: El Yunque, Cuba.
HABITAT: On a dead stick.
DISTRIBUTION: Known only from the type locality.

24. **Eccilia mexicana** Murrill, sp. nov.

Pileus convex to expanded, umbilicate, somewhat irregular, thin, solitary, 3 cm. broad; surface dry, glabrous, striate, caesious with an olivaceous tint, margin entire to lobed, lacerate with age, concolorous; lamellae decurrent, arcuate, rather narrow, crowded, white, pallid to salmon-colored, serrulate and blackish on the edges; spores subglobose, angular, uniguttulate, rose-colored, 7–9 μ; stipe subequal, tough, compressed, smooth, glabrous, paler blue than the pileus, 3.5 cm. long, 3 mm. thick.

Type collected on dead wood in woods at Jalapa, Vera Cruz, Mexico, 1,500 m. elevation, December 12–20, 1909, *W. A. & Edna L. Murrill 77* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

25. **Eccilia jamaicensis** Murrill, Mycologia 3: 274. 1911.

Pileus thin, convex, umbilicate, solitary, nearly 2 cm. broad; surface smooth, glabrous, blackish, margin entire, concolorous; lamellae broad, distant, decurrent, straw-yellow; spores angular, pinkish, 8–10 × 7 μ; cystidia none; stipe equal, hollow, flattened on drying, cartilaginous, glabrous, ardesiacous, 2 cm. long, 2 mm. thick.

TYPE LOCALITY: Chester Vale, Jamaica.
HABITAT: On decayed wood.
DISTRIBUTION: Known only from the type locality.

DOUBTFUL AND EXCLUDED SPECIES

Eccilia apiculata (Fries) Gill. Champ. Fr. 425. 1876. (*Agaricus apiculatus* Fries, Epicr. Myc. 159. 1838.) Reported from Massachusetts by Davis.

Eccilia polita (Pers.) Quél. Champ. Jura Vosg. 90. 1872. (*Agaricus politus* Pers. Syn. Fung. 465. 1801. Not *A. politus* Bolt. 1783.) Reported from New York by Atkinson and from Ohio by Hard. There are no specimens so determined at Albany.

Eccilia rhodocylix (Lasch) Gill. Champ. Fr. 425. 1876. (*Agaricus rhodocylix* Lasch, Linnaea **4**. 542. 1829.) Reported from New York by Peck and also from Cuba and Bermuda, but none of these specimens appear to be the true *E. rhodocylix* of Europe.

54. LEPTONIELLA Earle, Bull. N. Y. Bot. Gard. 5: 424. 1909.

Agaricus § *Leptonia* Fries, Syst. Myc. 1: 201. 1821.
Leptonia Quél. Champ. Jura Vosg. 88. 1872. Not *Leptonium* Griff. 1843.

Pileus thin, fleshy, putrescent, usually squamulose and attractively colored, the margin at first incurved; lamellae adnexed or adnate; spores pink or salmon-colored, usually angular; stipe central, slender, tubular, with cartilaginous cortex; veil none.

Type species, *Leptonia anatina* (Lasch) Quél.

I. Species occurring in temperate North America, except those confined to the Pacific coast

Pileus white or whitish, often darker on the disk and sometimes becoming darker on drying.

  Pileus uniformly white or whitish, not blackening on drying.

    Pileus with a small rounded umbo. 1. *L. albida.*

    Pileus without an umbo. 2. *L. albinella.*

  Pileus white or whitish, darker on the disk.

    Lamellae denticulate and bluish-black on the edges. 3. *L. subserrulata.*

    Lamellae entire and pallid on the edges. 4. *L. assularum.*

  Pileus white, becoming blackish on drying. 5. *L. transformata.*

Pileus rosy-isabelline, not striate. 6. *L. acericola.*

Pileus yellowish-brown, conspicuously striate. 7. *L. Whiteae.*

Pileus roseous with brown fibrils, darker on the disk. 8. *L. rosea.*

Pileus uniformly rosy-brown, striate, 1 cm. broad. 9. *L. roseibrunnea.*

Pileus violet-brown, darker on the disk, 12 mm. broad. 10. *L. parva.*

Pileus bluish-green, fading to ashy-green with age. 11. *L. aeruginosa.*

Pileus bluish-brown; lamellae bluish-brown and entire on the edges. 12. *L. foliomarginata.*

Pileus bluish-black, often becoming grayish-brown with age; lamellae black and serrulate on the edges. 13. *L. columbaria.*

Pileus grayish-brown, light-brown, or avellaneous.

  Stipe greenish-blue. 14. *L. multicolor.*

  Stipe murinous to plumbeous. 15. *L. subplacida.*

  Stipe grayish-brown or pallid.

    Pileus 4 cm. broad; stipe 8 cm. long. 16. *L. Earlei.*

    Pileus 1–3 cm. broad; stipe scarcely reaching 6 cm. long.

      Pileus convex or plane, not umbilicate.

        Stipe 2–3 cm. long; species occurring on decayed wood.

          Surface of pileus glabrous. 17. *L. glabra.*

          Surface of pileus squamulose. 18. *L. undulatella.*

        Stipe 5 cm. long; species occurring on the ground. 19. *L. alabamensis.*

      Pileus umbilicate or depressed.

        Surface of pileus striate.

          Surface of pileus squamulose, distinctly long-striate. 20. *L. longistriata.*

          Surface of pileus glabrous, except on the disk, not distinctly long-striate. 21. *L. grisea.*

        Surface of pileus not striate.

          Pileus deeply umbilicate; stipe uniformly pallid. 22. *L. umbilicata.*

          Pileus subumbilicate; stipe pale-violet-gray above and white below. 23. *L. validipes.*

Pileus dark-brown or blackish-brown, rarely reddish-brown; varying to yellowish-brown in *L. strictipes.*

  Stipe 1–4 cm. long.

    Stipe white. 24. *L. abnormis.*

    Stipe reddish-brown. 25. *L. hortensis.*

    Stipe mouse-gray, becoming blackish on drying. 26. *L. gracilipes.*

    Stipe brownish or blackish.

      Pileus walnut-brown; species occurring on decayed wood. 27. *L. seticeps.*

      Pileus blackish-brown; species occurring in grass on lawns. 28. *L. Davisiana.*

  Stipe 5–8 cm. long.

    Pileus hemispheric; species occurring on decayed wood. 29. *L. semiglobata.*

    Pileus usually umbilicate; species occurring in swamps or damp places.

      Lamellae and stipe pale-lemon-yellow. 30. *L. flavobrunnea.*

      Lamellae and stipe not as above.

        Spores ellipsoid, 10–14 $\times$ 7–9 μ. 31. *L. strictipes.*

        Spores globose, 7–10 μ. 32. *L. subvilis.*

II. Species confined to the Pacific coast

Pileus dark-gray. 33. *L. edulis.*

Pileus lilac-black. 34. *L. occidentalis.*

Pileus fuliginous. 35. *L. fuliginosa.*

Pileus black. 36. *L. nigra.*

III. Species confined to tropical North America

Species occurring on decayed wood.

Pileus 2 cm. broad. 37. *L. atrosquamosa.*
Pileus 5 cm. broad. 38. *L. miniata.*
Species occurring on the ground.
Pileus pale-tan-colored. 39. *L. Earlei.*
Pileus livid-purple. 40. *L. hypoporphyra.*
Pileus murinous or avellaneous.
Stipe 4–5 cm. long. 41. *L. murina.*
Stipe 2–3 cm. long.
Pileus uniformly pale-avellaneous. 42. *L. mexicana.*
Pileus avellaneous with fuliginous disk. 43. *L. cinchonensis.*

1. **Leptoniella albida** Murrill, sp. nov.

Pileus hemispheric to convex-expanded, slightly umbilicate or depressed at the center with a little rounded umbo, reaching 2–3 cm. broad; surface finely squamulose, dull or shining, white when young, very light creamy-tan at maturity, margin typically not striate, but sometimes with low, distant ridges; context thin, soft, brittle, the taste woody and slightly bitter; lamellae more or less sinuate, sometimes slightly decurrent by a little tooth, about 5 mm. wide near the stipe, not crowded, clear-flesh-colored; spores broadly ellipsoid, irregular, decidedly angular, apiculate, rose-colored, 8–9 × 6 μ; stipe smooth, finely granular above, concolorous, tough, distinctly hollow, 3–6.5 cm. long, 1.5–2 mm. thick.

Type collected in sandy soil in deep shade at Chapel Hill, North Carolina, September 12, 1915, *W. C. Coker 1759* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

2. **Leptoniella albinella** (Peck) Murrill.

Leptonia albinella Peck, Bull. N. Y. State Mus. 1[2]: 6. 1888.

Pileus submembranous, subconic or convex, subumbilicate, 1.2–2.5 cm. broad; surface furfuraceous or minutely squamulose, hygrophanous, whitish and striatulate on the margin when moist, white and shining when dry; lamellae narrow, crowded, adnexed, white, becoming incarnate; spores angular, 11–12.5 × 7.5–8.5 μ; stipe equal, hollow, glabrous or slightly pruinose, whitish, 3.5–5 cm. long, about 2 mm. thick.

TYPE LOCALITY: Sandlake, New York.
HABITAT: In bushy places.
DISTRIBUTION: Known only from the type locality.

3. **Leptoniella subserrulata** (Peck) Murrill.

Leptonia subserrulata Peck, Ann. Rep. N. Y. State Mus. **51**: 288. 1898.

Pileus thin, convex or campanulate, umbilicate, 1.5–3 cm. broad; surface grayish-white, darker colored and squamulose on the umbilicus, margin obscurely striate; lamellae thin, crowded, adnate, at first white, bluish-black and minutely denticulate on the edges; spores irregular or angular, 10–11 × 7.5 μ, usually containing a single large nucleus; stipe slender, rather long, hollow, glabrous, whitish or pallid, 5–7.5 cm. long, about 2 mm. thick.

TYPE LOCALITY: Gansevoort, New York.
HABITAT: On low damp ground in woods.
DISTRIBUTION: Maine and New York.

4. **Leptoniella assularum** (Berk. & Curt.) Murrill.

Agaricus assularum Berk. & Curt. Ann. Mag. Nat. Hist. III. **4**: 290. 1859.
Leptonia assularum Sacc. Syll. Fung. **5**: 709. 1887.

Pileus campanulate to expanded, umbonate, 4 cm. broad; surface glabrous, virgate, white, darker on the umbo, margin striate; lamellae seceding, white to flesh-colored; spores irregular; stipe flexuous, subequal, fuliginous, 8 cm. long, 3 mm. thick.

TYPE LOCALITY: South Carolina.
HABITAT: On decayed wood.
DISTRIBUTION: South Carolina.

5. **Leptoniella transformata** (Peck) Murrill.

Leptonia transformata Peck, Bull. N. Y. State Mus. 116: 32. 1907.

Pileus thin, submembranous, slightly convex or nearly plane, often umbilicate, 1–2 cm. broad; surface silky-tomentose, dry or slightly moist in wet weather, white, becoming blackish

or blackish-brown on drying, margin striatulate, at first incurved, sometimes becoming wavy or split when old; context white, the taste farinaceous; lamellae sinuate, adnexed, crowded, unequal, ventricose, white, becoming pink; spores angular, flesh-colored, uninucleate, 10–12.5 × 7.5–8.5 μ; stipe long, slender, straight or flexuous, equal or slightly narrowed upward, pruinose at the apex, glabrous and shining at the base, subcartilaginous, stuffed or hollow, white, becoming blackish or blackish-brown on drying, with white mycelium at the base, 2.5–5 cm. long, 1–2 mm. thick.

TYPE LOCALITY: Falmouth, Massachusetts.
HABITAT: In bushy places.
DISTRIBUTION: Known only from the type locality.

6. Leptoniella acericola Murrill, sp. nov.

Pileus convex to plane, slightly umbilicate with age, not umbonate, rather thick and firm, gregarious, reaching 5 cm. broad; surface dry, smooth, not striate, rosy-isabelline with a lilac tint, finely marked with darker fascicles of hairs, the older plants more isabelline with fuliginous disk, margin entire, concolorous, incurved when young; context with slightly farinaceous taste; lamellae adnate, ventricose, subdistant, pure-white to dull-rosy-isabelline, entire and concolorous on the edges; spores ovoid, undulate or very slightly angular in outline, usually apiculate, uniguttulate, rose-colored, 9 × 6 μ; stipe equal in mature specimens, rather short and thick, dry, densely squamulose, bright-steel-blue, fading to subumbrinous with age, 3–4 cm. long, 3–4 mm. thick.

Type collected on the end of a dead sugar maple log in the woods at Lake Placid, Adirondack Mountains, New York, July 17–29, 1912, *W. A. & Edna L. Murrill 210* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: New York.

7. Leptoniella Whiteae Murrill, sp. nov.

Pileus convex, depressed at the center, solitary, 3 cm. broad; surface hygrophanous, yellowish-brown, conspicuously striate nearly to the center, squamulose, margin concolorous, uneven; context with mild taste; lamellae sinuate, with a slight decurrent tooth, inserted, broad, ventricose, subcrowded, whitish to salmon-colored, concolorous on the edges; spores broadly ellipsoid, angular, usually obliquely apiculate, rose-colored, 12–14 × 8–10 μ; stipe equal, rather slender, glabrous, shining, yellowish, cartilaginous, hollow, whitish-mycelioid at the base, 5–6 cm. long, 2–3 mm. thick.

Type collected on much decayed wood in leaf-mold at Bar Harbor, Maine, August 12, 1901, *V. S. White 99* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

8. Leptoniella rosea (Longyear) Murrill.

Leptonia rosea Longyear, Trans. Mich. Acad. Sci. 3: 59. 1902.

Pileus thin, convex, obtuse and depressed on the disk, 3–3.5 cm. broad; surface roseous, with brown fibrils, darker on the disk, margin not striate; lamellae adnate with a slight tooth, not crowded, 6 mm. broad, whitish, becoming flesh-colored; spores angular, flesh-colored, 10–12 × 7–8 μ; stipe slender, smooth, roseous, cartilaginous, stuffed, slightly thickened at the apex and base, whitish-mycelioid at the base, 7–8 cm. long.

TYPE LOCALITY: Kent County, Michigan.
HABITAT: In burnt soil on a sandy hillside.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Trans. Mich. Acad. Sci. 3: *f. 5.*

9. Leptoniella roseibrunnea Murrill, sp. nov.

Pileus rather thick, convex-umbilicate, solitary, 1 cm. broad; surface moist, hygrophanous, uniformly rosy-brown, striate, margin entire, concolorous; lamellae adnate, very broad, distant, inserted, entire on the edges, salmon-colored; spores ellipsoid, angular, obliquely apiculate, uniguttulate, rose-colored, 7–8.5 × 5 μ; stipe very slender, equal, smooth, glabrous, brown, about 4 cm. long and 1 mm. thick.

Type collected on the ground in hemlock woods in the New York Botanical Garden, August 28, 1911, *W. A. Murrill* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

10. **Leptoniella parva** (Peck) Murrill.

Leptonia parva Peck, Ann. Rep. N. Y. State Mus. 45: 78 (18). 1893.

Pileus thin, convex or nearly plane, umbilicate, about 12 mm. broad; surface slightly radiate-striate, violaceous-brown, darker and squamulose on the umbilicus; lamellae subdistant, adnate, whitish tinged with flesh-color; spores irregular or angular, uninucleate, about 7.5 × 6 μ; stipe slender, glabrous, solid, concolorous, about 2.5 cm. long, scarcely 2 mm. thick.

TYPE LOCALITY: Lake Pleasant, Hamilton County, New York.
HABITAT: In woods.
DISTRIBUTION: Maine and northern New York.

11. **Leptoniella aeruginosa** (Peck) Murrill.

Leptonia aeruginosa Peck, Bull. Torrey Club 26: 65. 1899.

Pileus thin, convex, umbilicate or centrally depressed, 1.5–2.5 cm. broad; surface striate, aeruginous, fading with age to an ashy-green hue; lamellae broad, subdistant, adnate, aeruginous, tinged with flesh-color when mature; spores angular, 7.5–10 μ long, usually containing a single large nucleus; stipe slender, glabrous, hollow, concolorous, about 2.5 cm. long and 2 mm. thick.

TYPE LOCALITY: Oxbow River, Canada.
HABITAT: In shaded places in woods.
DISTRIBUTION: Known only from the type locality.

12. **Leptoniella foliomarginata** (Peck) Murrill.

Agaricus foliomarginatus Peck, Bull. Buffalo Soc. Nat. Sci. 1: 49. 1873.
Agaricus marginatus Peck, Ann. Rep. N. Y. State Mus. 26: 56. 1874.
Leptonia marginata Sacc. Syll. Fung. 5: 710. 1887.

Pileus convex, umbilicate, 2.5–5 cm. broad; surface bluish-brown, scabrous and a little darker on the disk; lamellae broad, subdistant, plane, whitish, becoming flesh-colored, the edges entire and colored like the pileus; stipe smooth, equal, concolorous, solid at the base, with a small cavity at the apex, 1.2–2 cm. long, 1 mm. thick.

TYPE LOCALITY: Maryland, New York.
HABITAT: On the ground and on decaying wood in groves.
DISTRIBUTION: Known only from the type locality.

13. **Leptoniella columbaria** (Bull.) Murrill.

Agaricus columbarius Bull. Herb. Fr. *pl. 413, f. 1.* 1788.
Agaricus serrula Pers. Syn. Fung. 463. 1801.
Agaricus serrulatus Fries, Syst. Myc. 1: 204. 1821.
Leptonia serrulata Quél. Champ. Jura Vosg. 88. 1872.

Pileus thin, hemispheric to expanded, umbilicate, 2–4 cm. broad; surface squamulose, bluish-black, often becoming grayish-brown with age, margin not striate; lamellae adnate, separating, broad, salmon-colored, black and serrulate on the edges; spores ellipsoid, angular, irregular, apiculate, uniguttulate, rose-colored, 8–10 × 6–7 μ; stipe glabrous, black or bluish, black-punctate at the apex, hollow, 4–6 cm. long, 2–3 mm. thick.

TYPE LOCALITY: France.
HABITAT: Among humus in woods.
DISTRIBUTION: Maine to Wisconsin and Ohio; also in Europe.
ILLUSTRATIONS: Bull. Herb. Fr. *pl. 413, f. 1;* Gill. Champ. Fr. *pl. 273* (*437*); Hard, Mushr. *f. 207.*

14. **Leptoniella multicolor** Murrill.

Agaricus variicolor Berk. & Curt. Ann. Mag. Nat. Hist. III. 4: 290. 1859. Not *A. variecolor* Pers. 1801.
Leptonia variicolor Sacc. Syll. Fung. 5: 715. 1887.

Pileus umbilicate, cespitose, 1.25–4 cm. broad; surface smooth, glabrous, pale-fuscous; context thin; lamellae adnate, broad, distant, abruptly attenuate behind, pale-purplish-white; spores irregular, 8 μ long; stipe glabrous, greenish-blue, stuffed with woolly fibers, 5 cm. long, 3 mm. thick.

TYPE LOCALITY: Connecticut.
HABITAT: Among bushes on damp ground.
DISTRIBUTION: Known only from the type locality.

15. **Leptoniella subplacida** Murrill, sp. nov.

Pileus convex to expanded, becoming depressed at the center, rather thick and firm, gregarious, 4–5 cm. broad; surface dry, grayish-yellowish-brown, somewhat shining, striate, squamulose, margin entire, concolorous, incurved; context with somewhat nutty taste; lamellae adnate or sinuate, distant, rather broad, almost white, becoming salmon-colored, entire and concolorous on the edges; spores very irregular, broadly ellipsoid, apiculate, angular, uniguttulate, rose-colored, 10–12.5 × 7 μ; stipe rather thick, equal, hollow, smooth, glabrous, murinous to plumbeous, darker than the pileus, 4–5 cm. long, 5–6 mm. thick.

Type collected on decaying wood or rich leaf-mold in woods at Bar Harbor, Maine, July 22, 1901, *V. S. White 47* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Vicinity of Bar Harbor, Maine.

16. **Leptoniella Earlei** Murrill, sp. nov.

Pileus large, rather thin, becoming depressed, solitary, 4 cm. broad; surface pale-grayish-brown, squamulose on the disk, margin concolorous, upturned with age, not striate; lamellae adnexed, inserted, subcrowded, subventricose, rather narrow, white to pale-pink, entire and concolorous on the edges; spores broadly ellipsoid, irregular, angular, obliquely apiculate, uniguttulate, rose-colored, 12–14 × 8–10 μ; stipe equal, rather thick, subconcolorous, glabrous, hollow, whitish-mycelioid at the base, 8 cm. long, 4 mm. thick.

Type collected among humus at the edge of a swamp at West Park, New York, August 3, 1903, *F. S. Earle 1634* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

17. **Leptoniella glabra** Murrill, sp. nov.

Pileus very thin, convex to plane, not umbonate, solitary, 2 cm. broad; surface smooth, glabrous, not viscid, uniformly dull-avellaneous, striate, with a satiny luster, margin entire, concolorous, incurved; context exceedingly thin; lamellae adnexed, narrow, ventricose, inserted, subdistant, entire on the edges, grayish-white to salmon-colored; spores subglobose, angular, apiculate, uniguttulate, rose-colored, 6–8 μ; stipe slightly eccentric, slender, equal, smooth, glabrous, grayish-white, 2–3 cm. long, 1 mm. thick.

Type collected on dead wood at Camp Sebec, on the north shore of Sebec Lake, Piscataquis County, Maine, September 16, 17, 1905, *W. A. Murrill* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

18. **Leptoniella undulatella** (Peck) Murrill.

Agaricus undulatellus Peck, Ann. Rep. N. Y. State Mus. **31**: 33. 1879.
Leptonia undulatella Sacc. Syll. Fung. **5**: 708. 1887.

Pileus membranous, convex, 1.2–2.5 cm. broad; surface minutely scurfy, squamulose on the disk, hygrophanous, grayish-brown and striatulate when moist, wavy on the margin; lamellae rounded behind, nearly free, subdistant, whitish, becoming tinged with flesh-color; spores irregular, 10 × 7.5 μ; stipe slender, glabrous, concolorous, usually curved, about 2.5 cm. long.

TYPE LOCALITY: Pine Hill, New York.
HABITAT: On decaying prostrate trunks of trees.
DISTRIBUTION: Known only from the type locality.

19. **Leptoniella alabamensis** Murrill, sp. nov.

Pileus small, convex, gregarious, 1–1.5 cm. broad; surface dry, light-brown, covered with silky fibrils, margin entire, concolorous; context with mild taste; lamellae adnate, easily separating, broad, ventricose, subcrowded, salmon-colored; spores subglobose, irregular, angular, obliquely apiculate, uniguttulate, 7–8 μ; stipe slender, equal, cartilaginous, solid, concolorous, partly clothed with fine, light-colored hairs, mostly glabrous in dried specimens, 5 cm. long, 1–2 mm. thick.

Type collected on the ground at Auburn, Alabama, July 3, 1897, *F. S. Earle & C. F. Baker* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

20. Leptoniella longistriata (Peck) Murrill.

Leptonia longistriata Peck, Bull. N. Y. State Mus. 150: 57. 1911.

Pileus conic or convex, submembranous, fragile, umbilicate, 1–1.5 cm. broad; surface subhygrophanous, squamulose, striatulate nearly or quite to the umbilicus both when moist and when dry, grayish-brown; lamellae thin, fragile, subdistant, eroded or wavy on the edges, whitish, becoming flesh-colored; spores irregular or angular, uninucleate, 12–16 × 8–10 μ; stipe straight, slender, tough, glabrous, shining when dry, hollow, concolorous, with white mycelium at the base, 3–5 cm. long, 1–2 mm. thick.

TYPE LOCALITY: Stow, Massachusetts.
HABITAT: On the ground by roadsides.
DISTRIBUTION: Massachusetts.

21. Leptoniella grisea (Peck) Murrill.

Leptonia grisea Peck, Ann. Rep. N. Y. State Mus. **45**: 79 (19). 1893.

Pileus broadly convex or plane, umbilicate, 1.2–2.5 cm. broad; surface striatulate when moist, grayish-brown, glabrous, except on the umbilicus, which is squamulose; lamellae broad, subdistant, grayish; spores subglobose, angular, uninucleate, 7.5–10 μ; stipe slender, hollow, glabrous, concolorous, 3.5–6 cm. long, 2 mm. thick.

TYPE LOCALITY: Lake Pleasant, New York.
HABITAT: Among sphagnum or on the ground in wet woods.
DISTRIBUTION: Maine and New York.

22. Leptoniella umbilicata Murrill, sp. nov.

Pileus thin, convex, deeply umbilicate, solitary, 2 cm. broad; surface smooth, uniformly pale-grayish-brown, fibrillose-scaly, margin entire, concolorous, not striate; lamellae adnexed or subadnate, distant, plane, rather narrow, pallid to salmon-colored, entire and concolorous on the edges; spores broadly ellipsoid, irregular, angular, obliquely apiculate, rose-colored, 8–10.5 × 7 μ; stipe slender, equal, cartilaginous, solid, smooth, glabrous, pallid, 4 cm. long, 2 mm. thick.

Type collected in soil by the roadside in mixed woods at West Park, New York, July 30, 1903, *F. S. Earle 1580* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Connecticut and New York.

23. Leptoniella validipes (Peck) Murrill.

Leptonia validipes Peck, Mycologia **5**: 70. 1913.

Pileus thin, membranous, convex, slightly depressed at the center or subumbilicate fragile, gregarious, 2–3 cm. broad; surface minutely squamulose, dark-gray or grayish-brown; lamellae thin, crowded, entire on the edges, adnate, white and smooth, becoming pink and dusted with the spores, which are angular, apiculate, uninucleate, 10–12 × 6–8 μ; stipe stout but fragile, pruinose at the apex, flexuous, hollow, sometimes twisted, often bent at the base, pale-violet-gray above, white below with white mycelium at the base, 3–6 cm. long, 2–3 mm. thick.

TYPE LOCALITY: Stow, Massachusetts.
HABITAT: On humus in swamps.
DISTRIBUTION: Known only from the type locality.

24. Leptoniella abnormis (Peck) Murrill.

Leptonia abnormis Peck, Jour. Myc. **14**: 2. 1908.

Pileus thin, convex, broadly umbilicate, 2–2.5 cm. broad; surface glabrous, hygrophanous, blackish-brown, shining and obscurely striatulate on the margin when moist, dark-grayish-brown when the moisture has escaped; context concolorous; lamellae broad, subdistant, slightly rounded behind, adnexed, pinkish or pale-flesh-colored when mature; spores broadly ellipsoid or subglobose, 6–7 × 5–6 μ; stipe equal, glabrous, hollow, whitish, 2.5 cm. long, 2 mm. thick.

TYPE LOCALITY: Ellis, Massachusetts.
HABITAT: Damp soil at the edge of deciduous woods.
DISTRIBUTION: Massachusetts.

25. Leptoniella hortensis (Peck) Murrill.

Leptonia hortensis Peck, Bull. N. Y. State Mus. 67: 26. 1903.

Pileus thin, convex, umbilicate, 1–2 cm. broad; surface hygrophanous, reddish-brown and striatulate when moist, paler and silky when dry; lamellae thin, crowded, adnexed, whitish when young, pinkish when mature; spores angular, uninucleate, 7.5–10 × 7.5 μ; stipe short, thin, glabrous, hollow, concolorous, 1.5–2.5 cm. long, about 2 mm. thick.

TYPE LOCALITY: Menands, New York.
HABITAT: On naked ground in gardens.
DISTRIBUTION: Known only from the type locality.

26. Leptoniella gracilipes (Peck) Murrill.

Leptonia gracilipes Peck, Mycologia 5: 69. 1913.

Pileus thin, membranous, hemispheric-convex or nearly plane, minutely papillate, becoming umbilicate, 1–2 cm. broad; surface subscabrous, hygrophanous, striatulate when moist, striate when dry, blackish-brown when young, becoming paler with age; lamellae ascending or arcuate, adnexed, white at first, then pale-flesh-colored; spores incarnate, angular, uninucleate, apiculate, 8–10 × 6–7 μ; stipe equal or slightly tapering upward, slender, hollow, glabrous, mouse-gray, becoming blackish on drying, often with white mycelium at the base, 2–4 cm. long, 1–1.5 mm. thick.

TYPE LOCALITY: Stow, Massachusetts.
HABITAT: In a wood road.
DISTRIBUTION: Known only from the type locality.

27. Leptoniella seticeps (Atk.) Murrill.

Leptonia seticeps Atk. Jour. Myc. 8: 116. 1902.

Pileus convex to expanded, gregarious, 1–3 cm. broad; surface walnut-brown, darker at the center, faintly and finely striate, minutely granulose under a lens, margin somewhat incurved at first; context whitish, very thin, the taste not characteristic; lamellae slightly adnexed, about 4 mm. broad, elliptic, pale-flesh-colored, eroded on the edges; spores ovoid or subglobose, very pale flesh-colored; stipe smooth, whitish at the base, somewhat paler than the pileus at the apex, fibrous-striate, straight or curved, fleshy, solid, even or very slightly enlarged below, 1–2 cm. long, 2–3 mm. thick.

TYPE LOCALITY: McGowan's woods, Ithaca, New York.
HABITAT: On rotten logs or very rotten wood on the ground.
DISTRIBUTION: Known only from the type locality.

28. Leptoniella Davisiana (Peck) Murrill.

Leptonia Davisiana Peck, Bull. N. Y. State Mus. 157: 49. 1912.

Pileus thin, fragile, submembranous, convex, becoming plane or broadly depressed, 1–2.5 cm. broad; surface glabrous but slightly squamulose at the center, often widely striate when dry, blackish-brown; lamellae thin, crowded, subventricose, adnexed, at first white, becoming pinkish and pulverulent from the spores, which are angular, uninucleate, 10–12 × 8–10 μ; stipe slender, equal, glabrous, stuffed or hollow, concolorous, 1.5–3 cm. long, 1–2 mm. thick.

TYPE LOCALITY: Brookline, Massachusetts.
HABITAT: Among short grass on a lawn.
DISTRIBUTION: Known only from the type locality.

29. Leptoniella semiglobata Murrill, sp. nov.

Pileus hemispheric, not expanding, gregarious or slightly cespitose, 2–3 cm. broad; surface slightly viscid when moist, grayish-brown with darker brown squamules, margin entire, concolorous, incurved; context with slightly nutty taste; lamellae adnate, subdistant, inserted, broad, whitish to salmon-colored, uneven and concolorous on the edges; spores broadly ellipsoid, angular, obliquely apiculate, rose-colored, 8–10.5 × 7 μ; stipe cylindric, equal, hollow, cartilaginous, smooth, glabrous, yellowish-gray, much paler than the pileus, 7–8 cm. long, 2–3 mm. thick.

Type collected on much decayed wood in woods at Bar Harbor, Maine, August 9, 1901, *V. S. White 85* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

30. Leptoniella flavobrunnea (Peck) Murrill.

Leptonia flavobrunnea Peck, Bull. Torrey Club **36**: 332. 1909.

Pileus thin, fragile, convex, umbilicate or centrally depressed, decurved on the margin, sometimes becoming nearly plane, gregarious, 1–2.5 cm. broad; surface subhygrophanous, minutely tomentose at the center, dark-brown or reddish-brown when young and moist, yellowish-brown when dry; context having a slightly farinaceous taste; lamellae adnate or subdecurrent, somewhat crowded, pale-lemon-yellow, becoming reddish-ocher or pinkish, sometimes transversely venose; spores subglobose, angular, uninucleate, obliquely apiculate at one end, 8 μ; stipe slender, fragile, flexuous, terete or compressed, stuffed or hollow, glabrous, fibrous, pallid or lemon-yellow, becoming brownish-yellow, often curved and white at the base, 5–7.5 cm. long, 2–3 mm. thick.

Type locality: Stow, Massachusetts.
Habitat: In swamps under deciduous trees.
Distribution: Known only from the type locality.

31. Leptoniella strictipes (Peck) Murrill.

Leptonia strictipes Peck, Bull. N. Y. State Mus. **150**: 57. 1911.

Pileus thin, campanulate or convex, obtuse or slightly umbilicate, 1.5–2.5 cm. broad; surface yellowish-brown or dark-brown, even or striatulate on the thin margin; lamellae thin, narrow, crowded, adnate or slightly sinuate with a decurrent tooth, dusted and subincarnate from the spores, which are angular, uninucleate, usually with an oblique apiculus at one end, 10–14 × 7–9 μ; stipe long, slender, straight, glabrous, hollow, equal or slightly tapering upward, with whitish mycelium at the base, 6–8 cm. long, 2–3 mm. thick.

Type locality: Stow, Massachusetts.
Habitat: Among sphagnum.
Distribution: Known only from the type locality.

32. Leptoniella subvilis (Peck) Murrill.

Agaricus rhodopolius umbilicatus Peck, Ann. Rep. N. Y. State Mus. **38**: 109. 1885.
Clitopilus subvilis Peck, Ann. Rep. N. Y. State Mus. **40**: 53. 1887.

Pileus thin, centrally depressed or umbilicate, 1.5–3 cm. broad; surface hygrophanous, dark-brown when moist, grayish-brown and silky-shining when dry, margin decurved, striatulate when moist; context having a farinaceous taste; lamellae subdistant, adnate or slightly decurrent, whitish when young, becoming flesh-colored; spores angular, 7.5–10 μ long; stipe slender, brittle, rather long, stuffed or hollow, glabrous, concolorous or a little paler, 5–8 cm. long, 2–4 mm. thick.

Type locality: Karner, New York.
Habitat: On damp soil in thin woods.
Distribution: New York and North Carolina.

33. Leptoniella edulis (Peck) Murrill.

Leptonia edulis Peck, Bull. Torrey Club **22**: 201. 1895.

Pileus thin, convex or centrally depressed, with or without an umbo, 1–3.5 cm. broad; surface velvety, dark-gray; context having a nutty flavor; lamellae rather broad, subventricose, adnexed, moderately crowded, at first whitish or light-drab, becoming flesh-colored; spores subglobose, angular, apiculate at one end, 7.5–10 μ long, containing a single large nucleus; stipe slender, hollow, concolorous, often with an abundant, white, mycelioid tomentum at the base, 2.5–3.5 cm. long, 1–2 mm. thick.

Type locality: Pasadena, California.
Habitat: Among grass and weeds.
Distribution: California.

34. Leptoniella occidentalis Murrill, sp. nov.

Pileus broad, thin, regular, convex to plane, not umbonate, solitary, 2–3 cm. broad; surface dry, finely scabrous or fibrillose, not striate, uniformly very dark steel-blue-violet or

lilac-black, margin entire, concolorous; context exceedingly thin; lamellae adnexed with a slight decurrent tooth, several times inserted, rather broad, ventricose, distant, entire on the edges, white to lilac or salmon-colored; spores ellipsoid, angular, apiculate, uniguttulate, 9–10 × 6–7 μ; stipe slender, equal, glabrous, cartilaginous, concolorous, whitish-mycelioid at the base, 4–5 cm. long, 2–3 mm. thick.

Type collected on the ground among humus under fir trees in mixed woods at Corvallis, Oregon, November 6–11, 1911, *W. A. Murrill 978* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Oregon and California.

35. Leptoniella fuliginosa Murrill, sp. nov.

Pileus hemispheric, not expanding, regular in shape, gregarious, reaching 2.5 cm. broad; surface glabrous, striate, fuliginous, smooth and darker on the disk, margin entire, concolorous, inflexed; lamellae adnate, arcuate, subdistant, broad, pallid to salmon-colored, undulate and concolorous on the edges; spores broadly ellipsoid, angular, obliquely apiculate, uniguttulate, rose-colored, 8–9 × 6–7 μ; stipe slender, subequal, smooth, glabrous, pale-avellaneous, solid, 4 cm. long, 2–2.5 mm. thick.

Type collected in soil among mosses on a low meadow in mixed woods at La Honda, near Palo Alto, California, November 25, 1911, *W. A. Murrill & L. R. Abrams 1302* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

36. Leptoniella nigra Murrill, sp. nov.

Pileus rather firm, convex, not fully expanding, slightly umbilicate at times, gregarious, 3–4 cm. broad; surface black, smooth, glabrous, polished, sometimes lacerate-striate in older specimens, margin concolorous, incurved, entire to lacerate; lamellae rather distant, broad, adnate, grayish-murinous to salmon-colored, entire and concolorous on the edges; spores ellipsoid, angular, obliquely apiculate, uniguttulate, rose-colored, 12–14 × 7–9 μ; stipe rather thick, cartilaginous, hollow, equal or slightly tapering upward, smooth, glabrous, plumbeous, whitish at the base, 4–6 cm. long, 4–6 mm. thick.

Type collected on the bank of a stream in soil among mosses in mixed woods at La Honda, near Palo Alto, California, November 25, 1911, *W. A. Murrill & L. R. Abrams 1257* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

37. Leptoniella atrosquamosa Murrill, Mycologia 3: 272. 1911.

Leptonia atrosquamosa Murrill, Mycologia 4: 332. 1912.

Pileus broadly convex, slightly depressed, regular, solitary, 2 cm. broad; surface avellaneous, striate, clothed with innate, imbricate, fuliginous scales which are upturned at the end, the depressed umbo being decorated with black tufted scales; lamellae adnate, narrow, distant, about three times inserted, the edges entire, concolorous; spores angular, 8–10 μ; stipe cylindric, equal, murinous, 3.5 cm. long, 2–3 mm. thick.

TYPE LOCALITY: Morce's Gap, Jamaica.
HABITAT: On dead wood.
DISTRIBUTION: Known only from the type locality.

38. Leptoniella miniata (Pat.) Murrill, Mycologia 3: 272. 1911.

Leptonia miniata Pat. Bull. Soc. Myc. Fr. 16: 176. 1900.

Pileus fleshy, convex, mamellate, about 5 cm. broad; surface glabrous, brilliant, pale-red when fresh, chestnut-red when dried, margin striate; lamellae unequal, adnate, broad, dull-red, powdered by the spores, which are angular, rosy, 10–13 μ; stipe long and slender, more or less radicate, concolorous, except at the base where it is orange, hollow, 8–10 cm. long, 3–5 mm. thick.

TYPE LOCALITY: Guadeloupe.
HABITAT: On decayed trunks of various trees.
DISTRIBUTION: Guadeloupe.

39. Leptoniella Earlei Murrill, Mycologia 3: 272. 1911.

Leptonia Earlei Murrill, Mycologia 4: 332. 1912.

Pileus convex, umbilicate, thin, solitary, 2 cm. broad; surface pale-tan, subfurfuraceous, the disk scaly, margin thin, not striate; lamellae adnexed, distant, broad, dirty-pink, hetero-

phyllous; spores angular, irregular, 10–13 × 7–8 μ; stipe cylindric, glabrous, subpruinose above, slightly paler than the pileus, hollow, 4 cm. long, 2 mm. thick.

TYPE LOCALITY: El Yunque mountain, Cuba.
HABITAT: On the ground in woods.
DISTRIBUTION: Known only from the type locality.

40. **Leptoniella hypoporphyra** (Berk. & Curt.) Murrill, Mycologia 3: 272. 1911.

Agaricus hypoporphyrus Berk. & Curt. Jour. Linn. Soc. **10**: 289. 1868.
Leptonia hypoporphyra Sacc. Syll. Fung. **5**: 713. 1887.

Pileus thin, depressed, 2.5 cm. broad; surface glabrous, shining, fuscous, margin striate; lamellae broad, livid-purple; spores angular, 7–9 μ; stipe slender, elongate, subfuscous, dilated at the apex, 4 cm. long, 1.5 mm. thick.

TYPE LOCALITY: Cuba.
HABITAT: In woods.
DISTRIBUTION: Cuba, Guadeloupe, and Honduras.

41. **Leptoniella murina** Murrill, sp. nov.

Pileus small, thin, convex to subexpanded, solitary, 2 cm. broad; surface very smooth, glabrous, not striate, uniformly murinous, margin entire, concolorous; lamellae adnexed, attenuate at both ends, narrow, distant, rosy-isabelline, entire and concolorous on the edges; spores globose, somewhat angular, apiculate, uniguttulate, rose-colored, 7–9 μ; stipe very slender, smooth, glabrous, slightly enlarged at the apex, murinous, 4–5 cm. long, 1–2 mm. thick.

Type collected on dead wood in woods at Orizaba, Mexico, January 10–14, 1910, *W. A. & Edna L. Murrill 811* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

42. **Leptoniella mexicana** Murrill, Mycologia 3: 273. 1911.

Leptonia mexicana Murrill, Mycologia **4**: 332. 1912.

Pileus convex to expanded, umbilicate, gregarious, 1.5 cm. broad; surface smooth, silky-fibrillose, pale-avellaneous, margin thin, fragile; lamellae adnate, broad, distant, heterophyllous, pale- ashy-gray with a slight rosy tint; spores polygonal, uninucleate, 7 × 4.5–5 μ; stipe slightly larger below, concolorous, glabrous, cartilaginous, 2.5 cm. long, 1.5 mm. thick.

TYPE LOCALITY: Orizaba, Vera Cruz, Mexico.
HABITAT: On the ground in humus in a coffee plantation.
DISTRIBUTION: Known only from the type locality.

43. **Leptoniella cinchonensis** Murrill, Mycologia 3: 273. 1911.

Leptonia cinchonensis Murrill, Mycologia **4**: 332. 1912.

Pileus thin, irregular, convex, umbilicate, gregarious, 2–2.5 cm. broad, less than 1 cm. high; surface dry, striate, avellaneous, fuliginous at the center, margin lobed; lamellae adnate, rather broad and distant, pale-russet; spores angular, uninucleate, 10–12 × 7–9 μ; stipe cylindric, smooth, fumosous, slightly tapering upward, 3 cm. long, 2.2 mm. thick.

TYPE LOCALITY: Cinchona, Jamaica.
HABITAT: On the ground on a shaded bank.
DISTRIBUTION: Known only from the type locality.

DOUBTFUL AND EXCLUDED SPECIES

Leptonia aethiops (Fries) P. Karst. Bidr. Finl. Nat. Folk **32**: 274. 1879. (*Agaricus aethiops* Fries, Epicr. Myc. 152. 1838.) Reported from New Jersey by Ellis.

Leptonia asprella (Fries) Quél. Champ. Jura Vosg. 89. 1872. (*Agaricus asprellus* Fries, Syst. Myc. **1**: 208. 1821.) Reported from New England, New York, and Ohio. A number of specimens at Albany from New York and Massachusetts have been compared with material from Bresadola and found to be different.

Leptonia chalybea (Pers.) Gill. Champ. Fr. 413. 1876. (*Agaricus chalybeus* Pers. Syn.

Fung. 343. 1801.) Reported from many parts of the United States by the older mycologists, but no correctly determined American material has been found either at Albany or elsewhere.

Leptonia formosa (Fries) Gill. Champ. Fr. 414. 1876. (*Agaricus formosus* Fries, Syst. Myc. 1: 208. 1821.) Reported from New York by Peck and from Maine by Miss White, but none of these specimens corresponds with authentic European material.

Leptonia incana (Fries) Gill. Champ. Fr. 414. 1876. (*Agaricus incanus* Fries, Syst. Myc. 1: 209. 1821. Not *A. incanus* Pers. 1801.) Reported from New York by Underwood and Atkinson and from Ohio by Hard. Authentic specimens from Bresadola appear to be quite different from American material.

Leptonia scabrosa (Fries) P. Karst. Bidr. Finl. Nat. Folk 32: 279. 1879. (*Agaricus scabrosus* Fries, Epicr. Myc. 154. 1838.) Reported by Peck as growing in swamps in New York. Specimens so determined are preserved on sheets at Albany, accompanied by good colored figures.

55. NOLANEA (Fries) Quél. Champ. Jura Vosg. 89. 1872.

Agaricus § *Nolanea* Fries, Syst. Myc. 1: 204 1821.

Pileus thin, fleshy, putrescent, usually campanulate, the margin straight and appressed when young; lamellae free or adnexed; spores pink or salmon-colored, usually angular; stipe central, slender, tubular, with cartilaginous cortex; veil none.

Type species, *Nolanea pascua* (Pers.) Quél.

I. SPECIES OCCURRING IN TEMPERATE NORTH AMERICA, EXCEPT THOSE CONFINED TO THE PACIFIC COAST

Pileus white or whitish.	
Pileus minutely papillate.	1. *N. parvipapillata.*
Pileus not papillate.	
Pileus 12 mm. broad.	2. *N. delicatula.*
Pileus 2.5–3.5 cm. broad.	
Pileus squamulose on the disk, margin striate.	3. *N. Clintoniana.*
Pileus smooth, margin not striate.	4. *N. Earlei.*
Pileus isabelline or fulvous.	
Pileus papillate.	5. *N. conica.*
Pileus not papillate.	
Pileus isabelline.	6. *N. isabellina.*
Pileus fulvous.	7. *N. substaurospora.*
Pileus olive-green.	
Pileus reaching 7 mm. broad.	8. *N. olivacea.*
Pileus reaching 15 mm. broad.	9. *N. chlorolivacea.*
Pileus blue.	
Pileus 1–3 mm. broad.	10. *N. atrocyanea.*
Pileus 1–2 cm. broad.	11. *N. Howellii.*
Pileus grayish-brown or avellaneous.	
Stipe 1 mm. thick.	
Pileus umbonate.	12. *N. gracilipes.*
Pileus umbilicate.	13. *N. parvula.*
Stipe 2 mm. thick.	14. *N. avellanea.*
Stipe 2–4 mm. thick.	15. *N. fuscogrisella.*
Pileus smoky-brown, umbilicate.	16. *N. suaveolens.*
Pileus dark-brown or fuliginous.	
Pileus 1–3 cm. broad.	
Surface glabrous or nearly so.	
Pileus conic, papillate, 6–12 mm. broad.	17. *N. fuscifolia.*
Pileus plane or depressed, 1–3 cm. broad.	18. *N. multiformis.*
Surface distinctly fibrillose.	
Stipe glabrous.	19. *N. fibrillosa.*
Stipe fibrillose.	20. *N. fibrillosipes.*
Surface furfuraceous or squamulose.	
Stipe squamulose, 2.5–3.5 cm. long.	21. *N. dysthales.*
Stipe hairy, 6–7 cm. long.	22. *N. nodospora.*
Pileus 3–5 cm. broad.	
Stipe 2.5–4 cm. long.	23. *N. subpicea.*
Stipe 6–12 cm. long.	24. *N. mammosa.*

II. SPECIES OCCURRING ON THE PACIFIC COAST

Pileus sordid-avellaneous; spores globose, 8–9 μ.	25. *N. occidentalis.*
Pileus brown or fuliginous; spores ellipsoid, 10.5–14 $\times$ 7–8 μ.	24. *N. mammosa.*

III. SPECIES CONFINED TO TROPICAL NORTH AMERICA

Pileus umbilicate.	26. *N. helicta.*

Pileus convex, umbonate.
Stipe white, 3 cm. long. 27. *N. cubensis.*
Stipe avellaneous, 6 cm. long. 28. *N. jamaicensis.*

1. Nolanea parvipapillata Murrill, sp. nov.

Pileus thin, regular, convex to expanded, minutely papillate, gregarious, 1–2 cm. broad; surface dry, smooth, subsilky, not striate, pallid, margin entire, concolorous; context thin, pallid, with mild taste; lamellae slightly sinuate or adnate, subdistant, somewhat ventricose, several times inserted, pallid to pink; spores broadly ellipsoid, slightly angular and irregular, obliquely apiculate, uniguttulate, rose-colored, 7–9 × 6–7 μ; stipe equal, somewhat compressed, pallid, glabrous, smooth, solid, whitish-myceloid at and near the base, 4–5 cm. long, 2–3 mm. thick.

Type collected among dead leaves in the New York Botanical Garden, July 30, 1902, *F. S. Earle 768* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

2. Nolanea delicatula (Peck) Sacc. Syll. Fung. 5: 723. 1887.

Agaricus delicatulus Peck, Ann. Rep. N. Y. State Mus. **24**: 66. 1872.

Pileus submembranous, convex, becoming expanded, fragile, 12 mm. broad; surface smooth, hygrophanous, striatulate when moist, silky when dry, pinkish-white; lamellae subdistant, rather broad, ventricose, slightly attached, white, becoming flesh-colored; spores subellipsoid, irregular, 6 μ long; stipe long, slender, smooth, hollow, subpellucid, white, 5–7.5 cm. long, 1 mm. thick.

TYPE LOCALITY: Sandlake, New York.
HABITAT: In sphagnum swamps.
DISTRIBUTION: New York and Massachusetts.

3. Nolanea Clintoniana (Peck) Sacc. Syll. Fung. 5: 723. 1887.

Agaricus Clintonianus Peck, Ann. Rep. N. Y. State Mus. **24**: 67. 1872.

Pileus submembranous, broadly conic, sometimes expanded and wavy on the margin, 2.5–3.5 cm. broad; surface whitish or light-gray, a little darker and scabrous-squamulose on the disk, margin striate; lamellae narrow, crowded, nearly free or easily separating from the stipe, whitish, becoming pale-flesh-colored; spores subellipsoid, irregular, 6 μ long; stipe slender, equal, smooth, hollow, white, sometimes slightly tinged with yellow, with an abundant white mycelium at the base, 5–10 cm. long, scarcely 2 mm. thick.

TYPE LOCALITY: Sandlake, New York.
HABITAT: In swamps.
DISTRIBUTION: Known only from the type locality.

4. Nolanea Earlei Murrill, sp. nov.

Pileus rather thin, regular, conic, becoming broadly convex or nearly plane, somewhat umbonate, gregarious, reaching 3 cm. broad; surface dry, smooth, subsilky, not striate, cinereous, becoming paler with age, margin entire, pallid; context thin, pallid, with mild taste; lamellae sinuate, subcrowded, ventricose, pallid to pinkish; spores globose, angular, apiculate, uniguttulate, rose-colored, 6–7 μ; stipe cylindric, equal, long, slender, silky, shining, subconcolorous, solid, whitish-myceloid at the base, 8 cm. long, about 3 mm. thick.

Type collected on the ground in mixed woods in the New York Botanical Garden, July 30, 1902, *F. S. Earle 769* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

5. Nolanea conica (Peck) Sacc. Syll. Fung. 5: 723. 1887.

Agaricus conicus Peck, Ann. Rep. N. Y. State Mus. **24**: 66. 1872.

Pileus submembranous, conic, at length expanded, with a minute umbo or papilla, 0.8–2 cm. broad; surface hygrophanous, dull-watery-cinnamon and striatulate when moist, silky-shining, subzonate, and pale-grayish-cinnamon when dry; lamellae crowded, rather narrow, nearly free, terminating before the margin of the pileus, bright-flesh-colored; spores subovoid,

irregular, 7.5 μ long; stipe slender, straight, hollow, brown, with white mycelium at the base, 5 cm. long, 1 mm. thick.

TYPE LOCALITY: Sandlake, New York.
HABITAT: Among mosses and on rotten wood in swamps.
DISTRIBUTION: Maine to Virginia in the eastern United States.

6. **Nolanea isabellina** Murrill, sp. nov.

Pileus conic, somewhat irregular, neither depressed nor papillate, solitary, 1.5 cm. broad; surface smooth, appressed-silky, uniformly pale-isabelline, margin not striate, somewhat plicate, concolorous, appressed when young; lamellae adnexed, crowded, narrow, salmon-colored, entire and concolorous on the edges; spores ellipsoid, angular, rose-colored, 7–8.5 × 3–5 μ; stipe tapering upward, hollow, cartilaginous, smooth, pale-brown, atomaceous above, whitish-mycelioid below, 6 cm. long, 1–2 mm. thick.

Type collected at the edge of a swamp at West Park, New York, August 3, 1903, *F. S. Earle 1713* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

7. **Nolanea substaurospora** Murrill, sp. nov.

Pileus convex to expanded, solitary, 2–3.5 cm. broad; surface smooth, dry, glabrous, isabelline, darker on the disk, margin pale-yellowish, not striate, often becoming lacerate; context thin, whitish, with mild taste; lamellae deeply sinuate, nearly free, distant, broad, ventricose, whitish to salmon-colored; spores irregularly stellate, uniguttulate, rose-colored, copious, about 8 μ in diameter; stipe equal or slightly tapering upward, smooth, glabrous, fuliginous, paler toward the apex, hollow, 4–5 cm. long, 2–4 mm. thick.

Type collected in rather sterile soil in hemlock woods in the New York Botanical Garden, June 22, 1902, *F. S. Earle 231* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

8. **Nolanea olivacea** Murrill, sp. nov.

Pileus small, conic to campanulate, regular, gregarious, 7 mm. broad; surface dry, conspicuously fibrillose, striate, dark-olivaceous on the disk, becoming paler toward the olivaceous margin, which is entire and appressed to the stipe; lamellae adnexed, subdistant, rather broad, salmon-colored, entire and concolorous on the edges; spores oblong-ellipsoid, undulate or slightly angular in outline, apiculate, rose-colored, 14–16 × 6–7 μ; stipe equal, fibrillose like the pileus, pale-olivaceous, about 2 cm. long and 1 mm. thick.

Type collected on the ground among leaves in woods at Unaka Springs, Tennessee, August 18–24, 1904, *W. A. Murrill 861* (herb. N. Y Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

9. **Nolanea chlorolivacea** Atk. Ann. Myc. **7**: 372. 1909.

Pileus campanulate, thin, 1–1.5 cm. broad; surface finely fibrous-striate, silky, shining, bright-olive-green; context dark, having a weak odor of soft soap; lamellae brown, tinged with flesh-color, broad and rounded in front, tapering gradually behind, adnexed; spores elongate, 5–7-angled, 9–11 × 6–8 μ; stipe cartilaginous, minutely floccose-scaly, even, solid, becoming hollow, dark-gray with an olive-green tint, whitish at the apex, 2 cm. long, 2.5 mm. thick.

TYPE LOCALITY: McGowan's woods, Ithaca, New York.
HABITAT: On the ground.
DISTRIBUTION: Known only from the type locality.

10. **Nolanea atrocyanea** Clements, Bot. Surv. Neb. **4**: 21. 1896.

Pileus membranous, campanulate, papillate, 1–3 mm. broad; surface glabrous or minutely verrucose, blackish-blue, margin striate, lacerate; lamellae narrow, subdistant, ochraceous; spores globose or ellipsoid, 3–7-angled, 7–9 × 5–7 μ; stipe equal, glabrous, cartilaginous, light-blue or glaucous, 1 cm. long, 0.5–1 mm. thick.

TYPE LOCALITY: Bellevue, Nebraska.
HABITAT: On the ground in woods.
DISTRIBUTION: Known only from the type locality.

11. **Nolanea Howellii** Peck, Bull. N. Y. State Mus. 150: 59. 1911.

Pileus thin, conic or convex, 1–2 cm. broad; surface minutely tomentulose, intensely blue; lamellae broad, adnate, subdistant, pale-yellow or straw-colored, becoming flesh-colored; spores oblong or subglobose, angular, with an oblique apiculus at the base, 10–12 × 7–8 μ; stipe slender, equal, hollow, glabrous, but covered with white, silky fibrils at the base, concolorous, 4–6 cm. long, 1–2 mm. thick.

Type locality: Rockville, Indiana.
Habitat: Among fallen leaves in damp places in thick woods.
Distribution: Known only from the type locality.

12. **Nolanea gracilipes** Murrill, sp. nov.

Pileus very thin, conic to subexpanded, umbonate, gregarious, 1–2 cm. broad; surface dry, smooth, shining, somewhat striate, avellaneous, slightly darker on the disk, margin thin, pale-avellaneous, striate, splitting with age; lamellae sinuate, broad, ventricose, subcrowded, becoming salmon-colored, entire on the edges; spores subglobose to broadly ellipsoid, obliquely apiculate, decidedly angular, uniguttulate, copious, rose-colored, 6–8 μ long; stipe very slender, equal, smooth, glabrous, yellowish, cartilaginous, 2–3 cm. long, less than 1 mm. thick.

Type collected among grass in an open field near the New York Botanical Garden, August 27, 1911, *W. A. Murrill* (herb. N. Y. Bot. Gard.).
Distribution: Known only from the type locality.

13. **Nolanea parvula** Murrill, sp. nov.

Pileus thin, convex, umbilicate, solitary, 1 cm. broad; surface glabrous, smooth, uniformly grayish-brown, striate, margin entire, concolorous; lamellae adnexed, subdistant, broad, subventricose, pallid to pinkish-gray, somewhat interveined; spores pale-pink; stipe slender, equal, smooth, glabrous, concolorous, cartilaginous, 3–4 cm. long, 1 mm. thick.

Type collected on the ground in woods in the New York Botanical Garden, July 8, 1902, *F. S. Earle 319* (herb. N. Y. Bot. Gard.).
Distribution: Known only from the type locality.

14. **Nolanea avellanea** Murrill, sp. nov.

Pileus thin, campanulate, papillate, gregarious, 2–3 cm. broad; surface glabrous, striate, avellaneous, margin thin, entire to undulate, sometimes splitting with age, pale-avellaneous; lamellae adnexed, nearly free, rather broad, subdistant, entire on the edges; spores very irregular in shape, with long, angular projections, uniguttulate, rose-colored, 10–12 × 7 μ; stipe slender, fistulose, smooth, glabrous, often twisted, cartilaginous, snapping readily, whitish, 6–8 cm. long, 2 mm. thick.

Type collected on the ground at the edge of deciduous woods in the New York Botanical Garden, August 10, 1915, *W. A. Murrill* (herb. N. Y. Bot. Gard.).
Habitat: On the ground in moist woods, sometimes among mosses.
Distribution: New York and Massachusetts.

15. **Nolanea fuscogrisella** (Peck) Sacc. Syll. Fung. 5: 88. 1891.

Agaricus fuscogrisellus Peck, Ann. Rep. N. Y. State Mus. **39**: 40. 1887.

Pileus submembranous, convex, conic or campanulate, either with or without a central papilla, 1–2.5 cm. broad; surface hygrophanous, grayish-brown, and striatulate when moist, paler and shining when dry, the disk often remaining dark-colored; lamellae moderately crowded, subventricose, whitish, becoming flesh-colored; spores irregular, 10 × 7.5 μ; stipe slender, brittle, glabrous, hollow, slightly pruinose or mealy at the apex, pallid or livid, with a white mycelium at the base, 3.5–7.5 cm. long, 2–4 mm. thick.

Type locality: Forge, Adirondack Mountains, New York.
Habitat: In mossy ground in open places.
Distribution: Known only from the type locality.

16. **Nolanea suaveolens** Peck, Bull. N. Y. State Mus. 122: 23. 1908.

Pileus submembranous, convex, umbilicate, 1.2–2 cm. broad; surface obscurely fibrillose or unpolished, indistinctly striate on the margin, smoky-brown; context of dried specimens having an agreeable aromatic odor; lamellae thin, unequal, crowded, adnate, whitish, becoming dingy-pink; spores angular, uninucleate, 10–12.5 × 6–7.5 μ; stipe slender, glabrous, hollow, brown, 3.5–5 cm. long, 1 mm. thick.

TYPE LOCALITY: Sandlake, New York.
HABITAT: In woods.
DISTRIBUTION: Known only from the type locality.

17. **Nolanea fuscifolia** (Peck) Sacc. Syll. Fung. 5: 720. 1887.

Agaricus fuscifolius Peck, Bull. Buffalo Soc. Nat. Sci. 1: 49. 1873.

Pileus thin, conic or campanulate, papillate, 6–12 mm. broad; surface smooth, hygrophanous, dark-brown and striatulate when moist, grayish-brown and shining when dry; lamellae ascending, rather crowded, narrowed toward each end, brown; spores irregular, nucleate, 8 × 6 μ; stipe equal, stuffed, smooth, concolorous, with a white mycelium at the base, 2.5 cm. long, 1 mm. thick.

TYPE LOCALITY: Maryland, New York.
HABITAT: On old logs in woods.
DISTRIBUTION: Northern New York.

18. **Nolanea multiformis** Peck, Bull. N. Y. State Mus. 167: 45. 1913.

Pileus fleshy, thin, convex, nearly plane or centrally depressed, fragile, gregarious, 1–3 cm. broad; surface glabrous or slightly fibrillose, brown or blackish-brown, margin striatulate, becoming wavy, split, or irregular with age; lamellae thin, subdistant, broad, adnate, white, becoming pink; spores subglobose, angular, uninucleate, 10–12 × 8–10 μ; stipe equal, fragile, flexuous, glabrous or fibrillose, solid or hollow, white or brown, 1–2 cm. long, 1–2 mm. thick.

TYPE LOCALITY: Brookline, Massachusetts.
HABITAT: On grassy ground.
DISTRIBUTION: Known only from the type locality.

19. **Nolanea fibrillosa** Peck, Ann. Rep. N. Y. State Mus. 54: 147. 1901.

Pileus thin, fragile, campanulate or very convex, 1.2–2 cm. broad; surface hygrophanous, brown and striatulate when moist, paler and somewhat shining when dry, fibrillose; lamellae ascending, crowded, narrowed behind, adnexed, somewhat ventricose, whitish or pallid, becoming salmon-colored, serrulate on the edges; spores ellipsoid, uninucleate, angular, 12.5–15 × 7.5–10 μ; stipe slender, glabrous, hollow, pallid, 5–7.5 cm. long, 1–2 mm. thick.

TYPE LOCALITY: Floodwood, New York.
HABITAT: On damp or mossy ground in woods.
DISTRIBUTION: New York.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. 54: *pl. I, f. 12–19.*

20. **Nolanea fibrillosipes** Murrill, sp. nov.

Pileus rather firm, conic, not expanding, slightly depressed at the apex, gregarious, 1.5 cm. broad; surface somewhat striate when moist, uniformly blackish-fuliginous, clothed with fine whitish fibrils, margin entire, not projecting, concolorous; lamellae adnexed, distant, somewhat ventricose, villose on the edges, umbrinous; spores very elongate and irregular in shape, oblong-ellipsoid, angular, apiculate, rose-colored, 13–15 × 8–9 μ; stipe slender, cartilaginous, somewhat contracted at the base, concolorous, clothed with conspicuous whitish fibrils, which are longer than those on the pileus, about 6.5 cm. long, and 2 mm. thick.

Type collected in sphagnum at Lake Placid, Adirondack Mountains, New York, October 3–14, 1912, *W. A. & Edna L. Murrill 459* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

21. Nolanea dysthales (Peck) Murrill.

Agaricus dysthales Peck, Ann. Rep. N. Y. State Mus. **32**: 28. 1880.
Entoloma dysthales Sacc. Syll. Fung. **9**: 85. 1891.

Pileus thin, submembranous, subconic, becoming convex or expanded, obtuse, 6–12 mm. broad; surface furfuraceous or squamulose, striate, brown, becoming paler with age; lamellae broad, subdistant, ventricose, brown or grayish-brown, becoming flesh-colored; spores irregular, oblong-ellipsoid, usually uninucleate, 15–16 × 7.5–8 μ; stipe slender, equal, hollow, squamulose, brownish, 2.5–3.5 cm. long, about 2 mm. thick.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: On damp ground in woods.
DISTRIBUTION: Known only from the type locality.

22. Nolanea nodospora Atk. Jour. Myc. 8: 114. 1902.

Pileus campanulate, 1–1.5 cm. broad; surface very scaly with squarrose scales, dark-brown; context brown; lamellae ascending, ventricose, becoming adnate, concolorous; spores elongate or nodulose-elongate, pale-pink, 12–18 × 6–9 μ; stipe concolorous below, paler above, very hairy, becoming fistulose, slightly enlarged at the base, 6–7 cm. long, 1.5–2.5 mm. thick.

TYPE LOCALITY: Six Mile Creek, Ithaca, New York.
HABITAT: On the ground in woods.
DISTRIBUTION: Known only from the type locality.

23. Nolanea subpicea Murrill, sp. nov.

Nolanea picea Peck, Ann. Rep. N. Y. State Mus. **50**: 102. 1897. Not *N. picea* Sacc. 1887.

Pileus thin, varying from broadly conic to convex or nearly plane, often irregular from its crowded or cespitose mode of growth, 3–5 cm. broad; surface smooth, covered with a grayish pruinosity, hygrophanous, blackish when moist, becoming grayish-brown to black when dry, margin thin, even, at first incurved and slightly tinged with red, projecting; context having a fishy odor; lamellae rather crowded, rounded behind, slightly adnexed, often becoming ventricose with the expansion of the pileus, more or less serrate on the edges, whitish, becoming flesh-colored; spores narrowly ellipsoid, 7.5–10 × 5 μ; stipe equal, often flexuose, stuffed or hollow, reddish-brown or blackish, 2.5–4 cm. long, 2–4 mm. thick.

Type collected among chips in the Adirondack Mountains, New York, September, *C. H. Peck* (herb. N. Y. State Mus.).
DISTRIBUTION: New York and Missouri.

24. Nolanea mammosa (L.) Quél. Champ. Jura Vosg. 89. 1872.

Agaricus mammosus L. Sp. Pl. 1174. 1753.

Pileus rather thin, large, conic-campanulate, papillate, gregarious, 3–4 cm. broad; surface dry, glabrous, usually somewhat striate, brown or fuliginous, becoming paler on drying; context thin, with peculiar odor; lamellae adnexed, seceding, broad, ventricose, subcrowded, grayish to salmon-colored; spores ellipsoid, irregular, angular, usually apiculate, rose-colored, 10.5–14 × 7–8 μ; stipe long, slender, equal, smooth, shining, subconcolorous or pallid, slightly enlarged and pruinose at the apex, snapping readily, whitish-mycelioid at the base, 6–12 cm. long, 3–5 mm. thick.

TYPE LOCALITY: Europe.
HABITAT: On the ground in woods or grassy places.
DISTRIBUTION: Throughout the United States, south to Alabama and west to Washington and California; also in Europe.
ILLUSTRATIONS: Boud. Ic. Myc. 1: *pl. 97;* Bres. Fungi Trid. *pl. 81;* Bull. Herb. Fr. *pl. 526* (as *Agaricus sericeus*); Quél. Champ. Jura Vosg. *pl. 6, f. 5;* Ricken, Blatterp. Deutschl. *pl. 74, f. 6.*
EXSICCATI: Sydow, Myc. Mar. *3516.*

25. Nolanea occidentalis Murrill, sp. nov.

Pileus thin, convex to plane, with a small rounded umbo, gregarious or subcespitose, 3 cm. broad; surface hygrophanous, glabrous, sordid-avellaneous, striate, margin entire, concolorous; context very thin, without odor; lamellae sinuate, nearly free, distant, ventricose, dull-whitish to salmon-colored; spores globose, angular, apiculate, uniguttulate, rose-colored, copious,

8–9 μ; stipe long, slender, subequal, smooth, avellaneous, hollow, snapping readily, 6 cm. long, 3 mm. thick.

Type collected among humus on the ground in woods at Seattle, Washington, October 20–November 1, 1911, *W. A. Murrill 342* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Vicinity of Seattle, Washington.

26. Nolanea helicta (Berk.) Sacc. Syll. Fung. 5: 729. 1887.

Agaricus helictus Berk. Jour. Linn. Soc. 15: 48. 1877.

Pileus deeply umbilicate, 2.5 cm. broad; surface silky, much wrinkled, pale-umber when dry, sometimes browner toward the margin; lamellae at first with a decurrent tooth, becoming adnexed; spores irregular, 7.5 μ long; stipe slender, twisted, 4 cm. long.

TYPE LOCALITY: Bermuda.
HABITAT: On rotten leaf-mold.
DISTRIBUTION: Known only from the type locality.

27. Nolanea cubensis Murrill, Mycologia 3: 275. 1911.

Pileus thin, convex to subexpanded, subumbonate, 2–3 cm. broad; surface pale-fuscous, minutely silky-fibrillose, at length rimose, striate to the umbo; lamellae free, crowded, rather broad, ventricose, white to pale-roseous; spores subglobose, smooth, 6 μ; cystidia none; stipe cylindric, solid, white, glabrous above, brownish-flocculose at the base, 3 cm. long, 2 mm. thick.

TYPE LOCALITY: Santiago de las Vegas, Cuba.
HABITAT: On a piece of board on the ground in a coffee grove.
DISTRIBUTION: Known only from the type locality.

28. Nolanea jamaicensis Murrill, Mycologia 3: 275. 1911.

Pileus campanulate with conic umbo, about 4 cm. broad; surface striate, glabrous, avellaneous, umbrinous to fuliginous at the umbo, margin entire, concolorous; lamellae rather broad, close, adnexed, salmon-colored from the copious spores, which are angular, somewhat longer than broad, 9–11 × 7–9 μ; stipe cylindric, equal, smooth, glabrous, pale-avellaneous, 6 cm. long, 3 mm. thick.

TYPE LOCALITY: Cinchona, Jamaica.
DISTRIBUTION: Known only from the type locality.

DOUBTFUL AND EXCLUDED SPECIES

Nolanea Babingtonii (Blox.) Sacc. Syll. Fung. 5: 717. 1887. (*Agaricus Babingtonii* Blox.; Berk. & Br. Ann. Mag. Nat. Hist. II. 13: 399. 1854.) Reported from the eastern United States and Cuba, but the specimens I have seen are incorrectly determined.

Nolanea pascua (Pers.) Quél. Champ. Jura Vosg. 89. 1872. (*Agaricus pascuus* Pers. Comm. Fung. Bavar. 94. 1800.) Reported from various localities in the United States but I find no American material that corresponds to European material so named or to authentic descriptions and figures.

Nolanea quadrata (Berk. & Curt.) Sacc. Syll. Fung. 5: 723. 1887. (*Agaricus quadratus* Berk. & Curt. Ann. Mag. Nat. Hist. III. 4: 290. 1859.) Described from specimens collected by Sprague in New England among wet moss in a pine swamp. Types have not been examined. The following description indicates a very distinct plant related to *Entoloma luteum* and its near relatives: pileus membranous, conic, becoming reflexed, 4 cm. broad; surface golden-brown; lamellae broadly ventricose, subtriangular, pinkish-golden-yellow; spores quadrangular or irregular, 14 μ; stipe golden-yellow, hollow, 8 cm. long.

Nolanea staurospora Bres. Fungi Trid. 1: 18. 1882. Reported from Colorado by Clements, but his specimens are different from those of Bresadola.

56. PLEUROPUS Roussel, Fl. Calvados ed. 2. 67. 1806.

Agaricus § *Clitopilus* Fries, Epicr. Myc. 148. 1838.
Clitopilus Quél. Champ. Jura Vosg. 87. 1872.
Rhodosporus Schroet. Krypt.-Fl. Schles. 3^1: 617. 1889.
Hexajuga Fayod, Ann. Sci. Nat. VII. 9: 389. 1889.

Pileus fleshy, putrescent, solitary or gregarious; lamellae decurrent, rarely varying to adnate; spores pink or salmon-colored; stipe central, rarely eccentric, stout, fleshy or fibrous; veil none.

Type species, *Agaricus orcellus* Bull.

I. SPECIES OCCURRING IN TEMPERATE NORTH AMERICA, EXCEPT THOSE CONFINED TO THE PACIFIC COAST

Pileus uniformly white or varying to yellowish-white or grayish-white.
Stipe 2–4 mm. thick.
Stipe 2.5–3.5 cm. long.
Spores subglobose, 4–5 μ. — 1. *P. Underwoodii.*
Spores ellipsoid, 10–12 × 6–7 μ. — 2. *P. subplanus.*
Stipe 5–7.5 cm. long.
Pileus 1.5–2.5 cm. broad. — 3. *P. lignicola.*
Pileus 2.5–5 cm. broad. — 4. *P. Woodianus.*
Stipe 4–10 mm. thick.
Hymenophores cespitose. — 5. *P. caespitosus.*
Hymenophores not cespitose.
Context having a strong odor of melilot. — 6. *P. Melilotus.*
Context having a farinaceous odor.
Pileus regular with central stipe; species found in woods. — 7. *P. prunulus.*
Pileus irregular with eccentric stipe; species found in pastures and open places. — 8. *P. obesus.*
Pileus whitish with disk reddish-yellow or rusty. — 9. *P. noveboracensis.*
Pileus white with a dark-lilac tint. — 10. *P. Seymourianus.*
Pileus ochraceous. — 11. *P. depressus.*
Pileus pale-cinereous.
Pileus 1–3 cm. broad.
Lamellae adnate or slightly decurrent. — 12. *P. albogriseus.*
Lamellae long-decurrent. — 13. *P. subcinereus.*
Pileus 4 cm. broad. — 14. *P. cinereicolor.*
Pileus murinous. — 15. *P. murinus.*
Pileus at first bluish, becoming pale-purple or mauve. — 16. *P. washingtoniensis*
Pileus gray, grayish-brown, or avellaneous.
Pileus 1–3.5 cm. broad.
Stipe 1 cm. long. — 17. *P. magnisporus.*
Stipe 2.5 cm. long.
Stipe 2 mm. thick; spores ellipsoid. — 18. *P. unitinctus.*
Stipe 2–4 mm. thick; spores subglobose.
Hymenophores closely gregarious, 1–2 cm. broad. — 19. *P. socialis.*
Hymenophores not closely gregarious, 3–5 cm. broad. — 20. *P. micropus.*
Stipe 7.5–10 cm. long. — 21. *P. squamulosus.*
Pileus 5–10 cm. broad. — 22. *P. abortivus.*
Pileus reddish or pale-alutaceous, 5–7.5 cm. broad. — 23. *P. pascuensis.*
Pileus reddish-brown, 2.5 cm. broad. — 24. *P. irregularis.*
Pileus grayish-incarnate; context incarnate. — 25. *P. erythrosporus.*
Pileus chestnut-colored, black on the disk. — 26. *P. Leptonia.*
Pileus dark-gray or blackish-brown. — 27. *P. sphaerosporus.*

II. SPECIES CONFINED TO THE PACIFIC COAST

Pileus white, 1–1.5 cm. broad. — 28. *P. adnatifolius.*
Pileus avellaneous, 2.5–3.5 cm. broad. — 29. *P. avellaneus.*

III. SPECIES OCCURRING IN TROPICAL NORTH AMERICA

Pileus white, 1–2 cm. broad. — 30. *P. Earlei.*
Pileus gray, 5–10 cm. broad. — 22. *P. abortivus.*

1. **Pleuropus Underwoodii** (Peck) Murrill.

Clitopilus Underwoodii Peck, Ann. Rep. N. Y. State Mus. **49**: 32 (18). 1897.

Pileus rather thin but fleshy, nearly plane or slightly depressed at the center, 1–3.5 cm. broad; surface even, whitish; lamellae narrow, crowded, slightly decurrent, pale-flesh-colored; spores subglobose, 4–5 μ; stipe rather short, equal or slightly tapering upward, solid, whitish, about 2.5 cm. long and 4 mm. thick.

TYPE LOCALITY: Syracuse, New York.
HABITAT: On the ground under coniferous trees.
DISTRIBUTION: Known only from the type locality.

2. **Pleuropus subplanus** (Peck) Murrill.

Clitopilus subplanus Peck, Bull. N. Y. State Mus. 122: 18. 1908.

Pileus thin, broadly convex or nearly plane, slightly depressed at the center or distinctly umbilicate, 2.5–3.5 cm. broad; surface glabrous, whitish or grayish-white; context white; spores ellipsoid, flesh-colored, angular, uninucleate, 10–12.5 × 6–7.5 μ; stipe slender, glabrous, terete or compressed, stuffed or hollow, concolorous, 2.5–3.5 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Sandlake, New York.
HABITAT: Among fallen leaves and decaying vegetable matter in woods.
DISTRIBUTION: Northern New York.

3. **Pleuropus lignicola** Murrill, sp. nov.

Pileus firm, regular in shape, convex to subexpanded, depressed or umbilicate, gregarious, 1.5–2.5 cm. broad; surface smooth, glabrous, somewhat hygrophanous, uniformly pallid or whitish, margin entire, concolorous, not striate, strongly inrolled; context pallid, with somewhat unpleasant taste; lamellae short-decurrent, subdistant, rather narrow, white to salmon-colored, entire and concolorous on the edges; spores subglobose, angular, rose-colored, about 8 × 7 μ; stipe long, equal, smooth, glabrous, concolorous, spongy within, 5–6 cm. long, 2–4 mm. thick.

Type collected on decayed wood at Redding, Connecticut, July, 1902, *F. S. Earle 641* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

4. **Pleuropus Woodianus** (Peck) Murrill.

Agaricus Woodianus Peck, Ann. Rep. N. Y. State Mus. **24**: 65. 1872.
Clitopilus Woodianus Sacc. Syll. Fung. **5**: 706. 1887.

Pileus fleshy, thin, convex or expanded, umbilicate or centrally depressed, 2.5–5 cm. broad; surface hygrophanous when moist, whitish or yellowish-white and shining when dry, margin striatulate when moist, often wavy or flexuous; lamellae crowded, adnate-decurrent, whitish, becoming flesh-colored; spores subglobose, irregular, 8.7 μ; stipe equal, flexuous, shining, concolorous, solid or hollow from the erosion of insects, 7.5 cm. long, 4 mm. thick.

TYPE LOCALITY: Greig, New York.
HABITAT: On the ground and on old logs in woods.
DISTRIBUTION: Known only from the type locality.

5. **Pleuropus caespitosus** (Peck) Murrill.

Clitopilus caespitosus Peck, Ann. Rep. N. Y. State Mus. **41**: 65. 1888.

Pileus at first convex, firm, nearly regular, becoming nearly plane, fragile, often irregular or eccentric from its tufted mode of growth, mostly cespitose but varying at times to solitary, 2.5–10 cm. broad; surface glabrous but with a slight silky luster, shining-white, becoming whitish; context white, the taste mild; lamellae narrow, thin, crowded, slightly rounded behind or subsinuate to slightly decurrent, whitish, becoming dingy-incarnate; spores very pale pink, 5 × 4 μ; stipe solid, silky-fibrillose, white, slightly mealy at the apex, 3.5–7.5 cm. long, 4–8 mm. thick.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: In thin woods and pastures or on lawns.
DISTRIBUTION: New England to the District of Columbia.
EXSICCATI: Shear, N. Y. Fungi *11*.

6. **Pleuropus Melilotus** (Berk. & Curt.) Murrill.

Agaricus Melilotus Berk. & Curt. Ann. Mag. Nat. Hist. III. **4**: 290. 1859.
Clitopilus Melilotus Sacc. Syll. Fung. **5**: 703. 1887.

Pileus convex, centrally depressed, 5 cm. broad; surface smooth, glabrous, margin incurved; context having a strong odor of melilot when dry; lamellae decurrent, broad, thin; spores irregular, 8 μ; stipe subequal, striate, fibrillose, 6 cm. long, 8 mm. thick.

TYPE LOCALITY: New England.
HABITAT: On the ground.
DISTRIBUTION: Known only from the type locality.

7. **Pleuropus prunulus** (Scop.) Murrill.

Agaricus prunulus Scop. Fl. Carn. ed. 2. **2**: 437. 1772.
Clitopilus prunulus Quél. Champ. Jura Vosg. 87. 1872.

Pileus fleshy, compact, at first convex and regular, becoming repand, 5–10 cm. broad; surface dry, pruinose, white or cinereous-white; context white, unchangeable, with a pleasant, farinaceous odor; lamellae deeply decurrent, subdistant, flesh-colored; spores subellipsoid, pointed at each end, 10–11 × 5–6 μ; stipe solid, naked, striate, white, 2.5–5 cm. long, 6–10 mm. thick.

TYPE LOCALITY: Europe.
HABITAT: In woods.

Distribution: Canada to Alabama and west to Wisconsin; also in Europe.
Illustrations: Ann. Rep. N. Y. State Mus. 48: *pl. 14, f. 1–6;* Atk. Stud. Am. Fungi ed. 1. *f. 135;* ed. 2. *f. 138;* Cooke, Brit. Fungi *pl. 322* (*343*); Fries, Sv. Aetl. Svamp. *pl. 19;* Gill. Champ. Fr. *pl. 270* (*146*); Hard, Mushr. *f. 200;* Hussey, Ill. Brit. Myc. 2: *pl. 47;* Schaeff. Fung. Bavar. *pl. 78* (as *Agaricus albellus*); Sow. Engl. Fungi *pl. 143*.
Exsiccati: Herpell, Präp. Hutpilze *21, 40;* Rav. Fungi Car. 1: *2* (as *Agaricus carneo-albus*); D. Sacc. Myc. Ital. *1613*.

8. Pleuropus obesus (Batsch) Murrill.

Agaricus obesus Batsch, Elench. Fung. Contin. 2: 89. 1789.
Agaricus orcellus Bull. Champ. Fr. *pl. 573, f. 1;* hyponym. 1791; Pers. Syn. Fung. 473. 1801.
Clitopilus orcellus Quél. Champ. Jura Vosg. 87. 1872.

Pileus fleshy, soft, plane or slightly depressed, often irregular, 5–10 cm. broad; surface even when young, slightly silky, somewhat viscid when moist, white or yellowish-white; context white, the taste and odor farinaceous; lamellae deeply decurrent, crowded, whitish, becoming flesh-colored; spores ellipsoid, 8.5–10 × 5 μ; stipe short, solid, flocculose, often eccentric, white, thickened at the apex, 2–6 cm. long, 5–8 mm. thick.

Type locality: Europe.
Habitat: In pastures and open places.
Distribution: Canada to Alabama in the eastern United States; also in Europe.
Illustrations: Ann. Rep. N. Y. State Mus. 48: *pl. 14, f. 7–11;* Batsch, Elench. Fung. *f. 216;* Bull. Herb. Fr. *pl. 573, f. 1;* Cooke, Brit. Fungi *pl. 323* (*344*); Fries, Sv. Aetl. Svamp. *pl. 20;* Gill. Champ. Fr. *pl. 271* (*145*); Hard, Mushr. *f. 201;* Hussey, Ill. Brit. Myc. 1: *pl. 78;* Pat. Tab. Fung. 1: *f. 427;* Vitt. Descr. Funghi Mang. *pl. 12, f. 2*.
Exsiccati: Sydow, Myc. Mar. *1002*.

9. Pleuropus noveboracensis (Peck) Murrill.

Agaricus noveboracensis Peck, Ann. Rep. N. Y. State Cab. 23: 89. 1872.
Clitopilus noveboracensis Sacc. Syll. Fung. 5: 702. 1887.

Pileus thin, convex, becoming expanded or slightly depressed, gregarious or cespitose, 2.5–5 cm. broad; surface rimose-areolate or concentrically rivulose, sometimes obscurely zonate, dingy-white, the disk often tinged with reddish-yellow or rusty hues when moist, margin often undulate, clothed when fresh and moist with a film of interwoven, webby, white fibrils; context having a farinaceous odor and a bitter, unpleasant taste; lamellae narrow, crowded, adnate to deeply decurrent, some of them forked, white, becoming dingy, tinged with yellow or flesh-color; spores globose, 4–5 μ; stipe equal, solid, concolorous, the mycelium white, often forming white, branching, root-like fibers, 2.5–5 cm. long, 2–6 mm. thick.

Type locality: North Elba, New York.
Habitat: In woods and pastures.
Distribution: Maine to North Carolina and west to Ohio.
Illustration: Hard, Mushr. *f. 204*.

10. Pleuropus Seymourianus (Peck) Murrill.

Agaricus Seymourianus Peck, Ann. Rep. N. Y. State Mus. 24: 66. 1872.
Clitopilus Seymourianus Sacc. Syll. Fung. 5: 703. 1887.

Pileus fleshy, thin, broadly convex or slightly depressed, 2.5–6.5 cm. broad; surface even, pruinose, whitish with a dark-lilac tint, margin sometimes lobed; lamellae narrow, crowded, decurrent, some of them forked at the base, whitish with a pale-flesh-colored tint; spores minute, globose or nearly so, 3–4 μ long; stipe equal, silky-fibrillose, hollow, 3.5–6.5 cm. long, 6–12 mm. thick.

Type locality: Greig, New York.
Habitat: In woods.
Distribution: Known only from the type locality.

11. Pleuropus depressus (Clements) Murrill.

Orcella depressa Clements, Bot. Surv. Neb. 4: 21. 1896.
Clitopilus depressus Sacc. Syll. Fung. 14: 128. 1899.

Pileus plano-convex or depressed at the center, submembranous, 0.7–1.5 cm. broad; surface glabrous, even, ochraceous, darker at the center; lamellae decurrent, subdistant,

light-cinnamon-colored; spores irregularly ellipsoid, pale-rosy, 8–10 × 4–5 μ; stipe short, solid, glabrous, white, thickened toward both ends, 1.5–2.5 cm. long, 2 mm. thick.

TYPE LOCALITY: Bellevue, Nebraska.
HABITAT: On fallen leaves.
DISTRIBUTION: Known only from the type locality.

12. **Pleuropus albogriseus** (Peck) Murrill.

Agaricus albogriseus Peck, Ann. Rep. N. Y. State Mus. **31**: 33. 1879.
Clitopilus albogriseus Sacc. Syll. Fung. **5**: 703. 1887.

Pileus firm, convex or slightly depressed at the center, 1.2–2.5 cm. broad; surface smooth, pale-gray; context having a farinaceous odor; lamellae moderately crowded, adnate or slightly decurrent, grayish, becoming flesh-colored; spores angular, irregular, 10–12.5 × 7.5 μ; stipe solid, concolorous, 2.5–7 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Adirondack Mountains, New York.
HABITAT: On the ground in woods.
DISTRIBUTION: New York and Massachusetts.

13. **Pleuropus subcinereus** Murrill, sp. nov.

Pileus thin, convex, deeply umbilicate, gregarious or subcespitose, 2–3 cm. broad; surface dry, smooth, minutely fibrillose, uniformly pale-cinereous, margin entire, concolorous, not striate, inflexed; context with mild taste; lamellae long-decurrent, arcuate, distant, white to dirty-pink, entire and concolorous on the edges; spores ellipsoid, angular, obliquely apiculate, uniguttulate, rose-colored, 8–10 × 5–7 μ; stipe often compressed, equal, smooth, subglabrous, concolorous, 2.5–4 cm. long, 2–4 mm. thick.

Type collected in soil at Redding, Connecticut, August 26, 1902, *F. S. Earle 1235* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

14. **Pleuropus cinereicolor** Murrill, sp. nov.

Pileus rather thin, regular, convex to expanded, depressed or slightly umbilicate, solitary, 4 cm. broad; surface smooth, subglabrous, uniformly pale-cinereous, margin entire, concolorous, not striate, inflexed; lamellae short-decurrent, crowded, narrow, pallid to salmon-colored; spores angular, rose-colored, 8–9 × 7 μ; stipe cylindric, equal, smooth, glabrous, concolorous, hollow, 5 cm. long, 5 mm. thick.

Type collected on the ground in moist mixed woods at West Park, New York, August 8, 1903, *F. S. Earle 1808* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

15. **Pleuropus murinus** Murrill, sp. nov.

Pileus small, rather thin, convex to expanded, abruptly and deeply umbilicate, regular in shape, gregarious, about 2 cm. broad; surface smooth, dry, pubescent or finely scabrous, uniformly mouse-colored; lamellae short-decurrent, of medium breadth, crowded, pallid to salmon-colored, entire and concolorous on the edges; spores ellipsoid, angular, rose-colored, obliquely apiculate, uniguttulate, 8 × 5 μ; stipe short, fleshy, subequal, smooth, hoary, solid, about 1.5 cm. long, 2–3 mm. thick.

Type collected in moist soil among mosses, in deciduous woods at Blacksburg, Virginia, July 27–August 3, 1904, *W. A. Murrill 428* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

16. **Pleuropus washingtoniensis** (Braendle) Murrill.

Clitopilus washingtoniensis Braendle; Peck, Bull. N. Y. State Mus. 150: 52. 1911.

Pileus thin, broadly convex, nearly plane or centrally depressed, gregarious or cespitose, 1.6–2.5 cm. broad; surface glabrous, at first bluish, soon pale-purple or mauve, margin undulate; context white, the taste mild; lamellae narrow, crowded, decurrent, slightly tinged with pink; spores ellipsoid, 6–7 × 4–5 μ; stipe short, central, eccentric, or almost lateral, equal or tapering downward, fibrillose and longitudinally rimulose, solid, brownish, 1–2 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Stanley Court, Washington, D. C.
HABITAT: On lawns.
DISTRIBUTION: Known only from the type locality.

17. Pleuropus magnisporus Murrill, sp. nov.

Pileus small, irregular, convex to depressed, cespitose or gregarious, reaching 2 cm. broad; surface dry, subglabrous, not polished, uneven, not striate, uniformly very pale avellaneous, margin concolorous, irregular, often lacerate; lamellae adnate to short-decurrent, plane, rather broad and distant, white to salmon-colored; spores very large, oblong-ellipsoid, nodulose or slightly angular, more or less truncate, uniguttulate, rose-colored, 14–16 × 8–9 μ; stipe short, tapering downward, smooth, glabrous, fleshy, pallid, 1 cm. long, 2–4 mm. thick.

Type collected on a manured lawn at Lake Placid, Adirondack Mountains, New York, July 17–29, 1912, *W. A. & Edna L. Murrill 49* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

18. Pleuropus unitinctus (Peck) Murrill.

Agaricus unitinctus Peck, Ann. Rep. N. Y. State Mus. **38**: 86. 1885.
Clitopilus unitinctus Sacc. Syll. Fung. **5**: 705. 1887.

Pileus thin, submembranous, flexible, convex or nearly plane, centrally depressed or umbilicate, 1–3.5 cm. broad; surface glabrous, subshining, often concentrically rivulose, grayish or grayish-brown; context whitish or grayish-white, the odor obsolete, the taste mild; lamellae narrow, moderately crowded, adnate or slightly decurrent, concolorous; spores ellipsoid, 7.5 × 5 μ; stipe slender, straight or flexuous, subtenacious, equal, slightly pruinose, grayish-brown, with a close, white, mycelioid tomentum at the base and white, root-like fibers of mycelium penetrating the soil, about 2.5 cm. long and 2 mm. thick.

TYPE LOCALITY: Karner, New York.
HABITAT: In woods of pine or balsam.
DISTRIBUTION: Northern New York.

19. Pleuropus socialis (Peck) Murrill.

Clitopilus socialis Peck, Bull. N. Y. State Mus. **5**: 648. 1899.

Pileus thin, convex, deeply umbilicate, closely gregarious, 1–2 cm. broad; surface grayish-brown; lamellae thin, moderately crowded, decurrent, concolorous when young, grayish-incarnate when mature; spores irregular, uninucleate, subglobose, 7.5–10 × 6–7.5 μ; stipe equal, stuffed or hollow, concolorous or a little paler, 1.2–2.5 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Delmar, New York.
HABITAT: Under pine and hemlock trees.
DISTRIBUTION: Known only from the type locality.

20. Pleuropus micropus (Peck) Murrill.

Agaricus micropus Peck, Ann. Rep. N. Y. State Mus. **31**: 33. 1879.
Clitopilus micropus Sacc. Syll. Fung. **5**: 705. 1887.

Pileus thin, fragile, convex or centrally depressed, umbilicate, 1.2–3.5 cm. broad; surface silky, gray, often with one or two narrow zones on the margin; context having a farinaceous taste and odor; lamellae rather narrow, crowded, adnate or slightly decurrent, gray, becoming salmon-colored with age; spores angular, uninucleate, salmon-colored, 7.5–10 × 6–7.5 μ; stipe short, solid or with a slight cavity, often slightly thickened at the apex, pruinose, gray, with a white, mycelioid tomentum at the base, reaching 2.5 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Ticonderoga, New York.
HABITAT: On the ground under trees.
DISTRIBUTION: Vermont and New York.
ILLUSTRATIONS: Bull. N. Y. State Mus. **10**: *pl. 78, f. 1–12.*

21. Pleuropus squamulosus (Peck) Murrill.

Clitopilus squamulosus Peck, Bull. N. Y. State Mus. **105**: 16. 1906.

Pileus thin, nearly plane, deeply umbilicate, 2.5–3.5 cm. broad; surface floccose-squamulose, especially at the center, grayish-brown and shining; context whitish; lamellae crowded, adnate or slightly decurrent, tinged with flesh-color; spores subquadrate, angular, flesh-colored, 12.5 μ broad, with a large shining nucleus; stipe long, slightly tapering upward, hollow,

fibrous-striate and colored like or a little paler than the pileus in the upper part, even and white toward the base, 7.5–10 cm. long, 4–6 mm. thick.

TYPE LOCALITY: Bolton Landing, New York.
HABITAT: Among fallen leaves in woods.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATIONS: Bull. N. Y. State Mus. 105: *pl. S, f. 5–8.*

22. **Pleuropus abortivus** (Berk. & Curt.) Murrill, Mycologia **3**: 280. 1911.

Agaricus abortivus Berk. & Curt. Ann. Mag. Nat. Hist. III. **4**: 289. 1859.
Clitopilus abortivus Sacc. Syll. Fung. **5**: 701. 1887.

Pileus of developed form fleshy, firm, convex to nearly plane or slightly depressed, usually entire on the margin, gregarious or cespitose, 5–10 cm. broad, the hymenophores very commonly represented by subglobose, aborted masses of cellular tissue 3–6 cm. in diameter; surface of developed form dry, silky-tomentose, becoming glabrous, gray or grayish-brown; context white, with farinaceous odor and taste; lamellae adnate, crowded, thin, strongly decurrent, whitish or pale-grayish, changing to salmon-colored; spores angular, uniguttulate, salmon-colored, 8.5–10 × 6–7.5 μ; stipe subequal, solid, slightly flocculose, longitudinally striate, concolorous or paler than the pileus, 3.5–8 cm. long, 5–12 mm. thick.

TYPE LOCALITY: New England.
HABITAT: On rich earth or much decayed wood in deciduous and coniferous woods.
DISTRIBUTION: Canada to Alabama and west to Wisconsin; also in Jalapa and the Tepeite Valley, Mexico.
ILLUSTRATIONS: Bull. N. Y. State Mus. **10**: *pl. 78, f. 13–19;* Hard, Mushr. *f. 202, 203;* McIlv. Am. Fungi ed. 2. *pl. 63, f. 1–3;* Mycologia **4**: *pl. 56, f. 12.*
EXSICCATI: Barth. Fungi Columb. *4517;* Shear, N Y. Fungi *106.*

23. **Pleuropus pascuensis** (Peck) Murrill.

Agaricus pascuensis Peck, Ann. Rep. N. Y. State Mus. **39**: 39. 1887.
Clitopilus pascuensis Peck, Ann. Rep. N. Y. State Mus. **42**: 41. 1889.

Pileus fleshy, compact, centrally depressed, solitary or gregarious, 5–7.5 cm. broad; surface glabrous, reddish or pale-alutaceous, the cuticle of the disk cracking into minute areas; context having a farinaceous taste; lamellae rather narrow, crowded, decurrent, whitish, becoming flesh-colored; spores subellipsoid, pale-incarnate, 7.5–10 × 5–6 μ; stipe short, equal or tapering downward, solid, glabrous, concolorous, 1.5–3.5 cm. long, 8–12 mm. thick.

TYPE LOCALITY: Day, Saratoga County, New York.
HABITAT: In pastures.
DISTRIBUTION: Known only from the type locality.

24. **Pleuropus irregularis** (Peck) Murrill.

Clitopilus irregularis Peck, Bull. Torrey Club **26**: 65. 1899.

Pileus thin, irregular, sometimes eccentric, nearly plane, usually cespitose, 2.5 cm. broad; surface glabrous, reddish-brown; context white; lamellae rather broad, subdistant, decurrent, whitish, becoming tinged with flesh-color; spores ellipsoid, pale-flesh-colored, 6–7 × 3–4 μ; stipe short, solid or spongy within, externally fibrous, concolorous, about 2.5 cm. long, 2–4 mm. thick.

TYPE LOCALITY: London, Ontario, Canada.
HABITAT: Manured, ground.
DISTRIBUTION: Known only from the type locality.

25. **Pleuropus erythrosporus** (Peck) Murrill.

Clitopilus erythrosporus Peck, Ann. Rep. N. Y. State Mus. **41**: 64. 1888.

Pileus thin, hemispheric or strongly convex, 2.5–5 cm. broad; surface glabrous or merely pruinose, grayish-incarnate; context whitish with an incarnate tint, the taste farinaceous; lamellae narrow, crowded, arcuate, strongly decurrent, concolorous; spores ellipsoid, rosy-red, 5 × 3–4 μ; stipe equal or slightly tapering upward, hollow, slightly pruinose at the apex, concolorous, 2.5–3.5 cm. long, 6–12 mm. thick.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: On decayed wood and among fallen leaves in woods.
DISTRIBUTION: New York.

26. **Pleuropus Leptonia** (Peck) Murrill.

Clitopilus Leptonia Peck, Bull. N. Y. State Mus. 167: 39. 1913.

Pileus thin, conic or convex, umbilicate, gregarious, 2.5–3.5 cm. broad; surface hygrophanous, squamulose on and near the broad umbilicus, chestnut-colored and striatulate on the margin when moist, black on the umbilicus; lamellae broad, distant, white, becoming pink, broadly sinuate-adnate or decurrent, sometimes transversely venose; spores subglobose, angular, uninucleate, 10–12 × 8–10 μ; stipe slender, equal or slightly narrowed upward, fibrillose, straight, stuffed or hollow, brown, becoming darker with age, with a copious, white, mycelioid tomentum at the base, 5–8 cm. long, 1–3 mm. thick.

TYPE LOCALITY: Stow, Massachusetts.
HABITAT: Low ground under trees.
DISTRIBUTION: Known only from the type locality.

27. **Pleuropus sphaerosporus** (Peck) Murrill.

Clitopilus sphaerosporus Peck, Bull. Torrey Club 31: 179. 1904.

Pileus fleshy but thin, nearly plane, umbonate or slightly depressed at the center, 1–2.5 cm. broad; surface dry, minutely tomentose-pubescent, dark-gray or blackish-brown, margin involute or decurved; context white; lamellae thin, narrow, crowded, unequal, slightly decurrent, whitish, faintly tinged with pink; spores pale-pink, globose, uninucleate, 5–6 μ; stipe equal or slightly tapering upward, solid, firm, concolorous, with a white, mycelioid tomentum at the base, 2–4 cm. long, 2–4 mm. thick.

TYPE LOCALITY: St. Louis, Missouri.
HABITAT: Among fallen leaves in ravines.
DISTRIBUTION: Known only from the type locality.

28. **Pleuropus adnatifolius** Murrill, sp. nov.

Pileus small, convex, not expanding, gregarious, 1–1.5 cm. broad; surface smooth, dry, glabrous, estriate, uniformly milk-white, margin entire, concolorous, incurved; lamellae adnate, narrow, arcuate, distant, white to pale-rose-colored, entire and concolorous on the edges; spores broadly ellipsoid, angular, apiculate, uniguttulate, rose-colored, 8–10 × 6–7 μ; stipe rather slender, fleshy, solid, smooth, glabrous, white, about 3 cm. long, 2–3 mm. thick.

Type collected in sand and gravel by the roadside at Preston's Ravine, near Palo Alto, California, November 25, 1911, *W. A. Murrill & L. R. Abrams 1199* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

29. **Pleuropus avellaneus** Murrill, sp. nov.

Pileus rather thin and firm, umbilicate to subinfundibuliform, regular, gregarious, abundant, 2.5–3.5 cm. broad; surface smooth, dry, glabrous, somewhat shining, uniformly avellaneous; context with farinaceous taste but no odor; lamellae truly decurrent, narrow, arcuate, subcrowded, whitish-avellaneous to pinkish, entire and concolorous on the edges; spores oblong-ellipsoid with rounded ends, smooth, rose-colored, 7–9 × 5–6 μ; stipe subfleshy with a cartilaginous rind, hollow, equal, often curved, smooth, glabrous, not shining, avellaneous, 3–5 cm. long, 2–3 mm. thick.

Type collected on the ground in a cultivated field at Seattle, Washington, October 20–November 1, 1911, *W. A. Murrill 412* (herb. N. Y. Bot. Gard.).
HABITAT: On the ground in fields or woods.
DISTRIBUTION: Vicinity of Seattle, Washington.

30. **Pleuropus Earlei** Murrill, Mycologia 3: 280. 1911.

Clitopilus Earlei Murrill, Mycologia 4: 332. 1912.

Pileus thin, firm, convex to subexpanded, umbilicate, gregarious, 1–2 cm. broad; surface pure-white, glabrous, margin entire, inrolled when young; lamellae short-decurrent, subcrowded, narrow, irregular, pure-white to pink; spores angular, 7 × 5–6 μ; stipe short, subequal, often flattened, pure-white, fistulose, minutely pruinose to glabrous, surrounded at the base with whitish mycelium, 2–3 cm. long, 2–3 mm. thick.

TYPE LOCALITY: Santiago de las Vegas, Cuba.
HABITAT: On the ground in a banana field.
DISTRIBUTION: Santiago de las Vegas, Cuba.

DOUBTFUL AND EXCLUDED SPECIES

Clitopilus cancrinus (Fries) Quél. Champ. Jura Vosg. 227. 1872. (*Agaricus cancrinus* Fries, Epicr. Myc. 150. 1838.) Reported by Peck from New York and by Ellis from New Jersey, but no satisfactory American specimens have been seen.

Clitopilus carneo-albus (With.) Gill. Champ. Fr. 409. 1876. (*Agaricus carneo-albus* With. Brit. Pl. ed. 4. **4**: 167. 1801.) Reported by Ravenel, Peck, Miss White, and others, but none of the specimens seen appear to be correctly determined.

Clitopilus connissans Peck, Ann. Rep. N. Y. State Mus. **41**: 64. 1888. This species was transferred to the genus *Psilocybe* by Peck in Bull. N. Y. State Mus. 122: 131. 1908.

Clitopilus Davisii Peck, Bull. Torrey Club **36**: 153. 1909. Specimens collected by Murrill and House in North Carolina show this species to belong to the genus *Entoloma*.

Clitopilus popinalis (Fries) P. Karst. Bidr. Finl. Nat. Folk **32**: 270. 1879. (*Agaricus popinalis* Fries, Syst. Myc. **1**: 194. 1821.) Reported from New York by Peck and said to occur also in other parts of North America. In describing *Clitopilus abortivus*, Berkeley said it was near *C. popinalis*, which is also frequently abortive, but distinguished by its downy pileus and the gills not being gray. Fries' figures of *C. popinalis* represent a large, thick, and umbonate plant which is very dark in color both without and within. It is probable that *Pleuropus noveboracensis* and *P. abortivus* will account for most of the specimens in North America determined as *Clitopilus popinalis*.

Clitopilus stilbocephalus (Berk. & Br.) Sacc. Syll. Fung. **5**: 705. 1887. (*Agaricus stilbocephalus* Berk. & Br. Ann. Mag. Nat. Hist. V. **3**: 205. 1879.) Reported from New York by Peck. See *Pleuropus Underwoodii*.

Clitopilus undatus (Fries) P. Karst. Bidr. Finl. Nat. Folk **32**: 271. 1879. (*Agaricus undatus* Fries, Epicr. Myc. 149. 1838.) Reported from Greenland and Minnesota.

57. LEPISTA (Fries) W. G. Sm. Clavis Agar. 26. 1870.

Paxillus § *Lepista* Fries, Epicr. Myc. 315. 1838.

Hymenophore large, fleshy, putrescent; surface smooth, not viscid, margin at first involute; lamellae adnexed or slightly decurrent; spores rosy-ochraceous in mass, not angular; stipe central, fleshy; veil none.

Type species, *Paxillus Lepista* Fries.

Stipe 4–13 mm. thick.
- Pileus pale-violet to avellaneous, fuliginous on the disk; odor not characteristic. — 1. *L. tarda.*
- Pileus uniformly grayish; odor strong, farinaceous-rancid. — 2. *L. panaeola.*

Stipe 15–30 mm. thick.
- Hymenophores solitary or gregarious; odor and taste pleasant. — 3. *L. personata.*
- Hymenophores densely cespitose; odor and taste strong and disagreeable. — 4. *L. graveolens.*

1. Lepista tarda (Peck) Murrill.

Agaricus sordidus Fries, Syst. Myc. **1**: 51. 1821. Not *A. sordidus* Dicks. 1785.
Tricholoma sordidum Quél. Champ. Jura Vosg. 47. 1872.
Clitocybe tarda Peck, Bull. Torrey Club **24**: 140. 1897.
Clitopilus tardus Peck, Ann. Rep. N. Y. State Mus. **54**: 167. 1901.
Rhodopaxillus sordidus Maire, Ann. Myc. **11**: 338. 1913.
Melanoleuca sordida Murrill, Mycologia **6**: 3. 1914.
Lepista domestica Murrill, Mycologia **7**: 106. 1915.

Pileus thin, convex to plane or slightly depressed, subumbonate at times, often irregular, gregarious or cespitose, 3–7 cm. broad; surface smooth, glabrous, pale-violet to avellaneous with ochraceous hues, usually fuliginous on the disk, margin naked, involute when young; context violaceous to whitish, mild, edible; lamellae sinuate to slightly decurrent, narrow, crowded, concolorous when young, fading with age, the edges often eroded; spores ellipsoid, smooth, pale-rosy-ochraceous in mass, 7–8 × 4–5 μ; stipe eccentric at times, equal, firm, concolorous, glabrous, stuffed or hollow, 3–8 cm. long, 4–8 mm. thick.

TYPE LOCALITY: Lynn, Mass.

HABITAT: About manure piles and in manured ground; often in greenhouses.

DISTRIBUTION: Temperate North America; also in Europe.

ILLUSTRATIONS: Bull. N. Y. State Mus. 116: *pl. 104* (as *Tricholoma nudum*); Bull. N. Y. State Mus. 131: *pl. 115;* Cooke, Brit. Fungi *pl. 100 (125)*; Fries, Ic. Hymen. *pl. 45, f. 1;* Mycologia **6**: *pl. 113, f. 4.*

2. **Lepista panaeola** (Fries) P. Karst. Bidr. Finl. Nat. Folk **32**: 481. 1879.

Agaricus ectypus Secr. Mycogr. Suisse **2**: 86. 1833. Not *A. ectypus* Fries, 1821.
Agaricus panaeolus Fries, Epicr. Myc. 49. 1838.
Tricholoma panaeolum Quél. Champ. Jura Vosg. 45. 1872.
Gyrophila nimbata Quél. Fl. Myc. Fr. 271. 1888.
Rhodopaxillus panaeolus Maire, Ann. Myc. **11**: 338. 1913.

Pileus fleshy, convex to expanded, gibbous, sometimes eccentric, cespitose, 4–9 cm. broad; surface whitish-gray, grayish-variegated and dull-flesh-colored when young; context gray, the odor strong, farinaceous-rancid, the taste mild; lamellae mostly crowded, sometimes narrow and sometimes broad, easily separable from the hymenophore, sinuate-uncinate, sometimes decurrent, from whitish-gray to lurid-flesh-colored or rufescent; spores ellipsoid, slightly tuberculose, hyaline, dull-rosy in mass, 5.5–6 × 3.5 μ; stipe solid, gray to grayish-fuscous within, subequal, fibrillose, subfurfuraceous at the apex, 2–6 cm. long, 5–13 mm. thick.

TYPE LOCALITY: Europe.
HABITAT: In grassy places in the open or near woods; rarely in woods.
DISTRIBUTION: Canada to North Carolina; also in Europe.
ILLUSTRATION: Fries, Ic. Hymen. *pl. 36, f. 2.*
EXSICCATI: Barth. Fungi Columb. *4733.*

3. **Lepista personata** (Fries) W. G. Smith, Clavis Agar. 37. 1870.

?*Agaricus nudus* Bull. Herb. Fr. *pl. 439.* 1789.
Agaricus violaceus Sow. Engl. Fung. *pl. 209.* 1799. Not *A. violaceus* Schaeff. 1774.
Agaricus bicolor Pers. Syn. Fung. 281. 1801. Not *A. bicolor* Batsch, 1783.
Agaricus personatus Fries, Obs. Myc. **2**: 89. 1818.
Tricholoma personatum Quél. Champ. Jura Vosg. 45. 1872.
Entoloma personatum Peck, Ann. Rep. N. Y. State Mus. **54**: 166. 1901.
Rhodopaxillus personatus Maire, Ann. Myc. **11**: 338. 1913.

Pileus compact, becoming soft, thick, convex or plane, obtuse, regular, solitary or gregarious, 5–12 cm. broad; surface moist, glabrous, variable in color, generally pallid or cinereous tinged with violet or lilac, sometimes wholly violet, margin at first involute and villose-pruinose, becoming glabrous; context whitish, pleasant to the taste, edible; lamellae broad, crowded, rounded behind, free, violaceous, becoming sordid-whitish or fuscous; spores ellipsoid, smooth, sordid-white, dull-pinkish in mass, 7.5–10 × 4–5 μ; stipe generally thick, often bulbous, solid, fibrillose or villose-pruinose, whitish or concolorous, 3–7 cm. long, 1.5–3 cm. thick.

TYPE LOCALITY: Europe.
HABITAT: In open woods or among long grass in fields.
DISTRIBUTION: Temperate North America; also in Europe.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus **48**: *pl. 22;* Cooke, Brit. Fungi *pl. 66 (113);* Fries, Sv. Aetl. Svamp. *pl. 57;* Hussey, Ill. Brit. Myc. **2**: *pl. 40;* N. Marshall, Mushr. Book *pl. 16;* Mycologia **2**: *pl. 19, f. 1;* Sow. Engl. Fungi *pl. 209.*
EXSICCATI: Sydow, Myc. Mar. *2305, 3403;* Thüm. Fungi Austr. *1004;* Herpell, Präp. Hutpilze *63.*

4. **Lepista graveolens** (Peck) Murrill.

Entoloma graveolens Peck, Ann. Rep. N. Y. State Mus. **53**: 844. 1900.

Pileus thick, firm, brittle, convex, often irregular, densely clustered and forming rings, 5–10 cm. broad; surface polished, glabrous or slightly flocculent on the margin, whitish with a violaceous tint; context white, the taste unpleasant, disagreeable, the odor strong, disagreeable; lamellae crowded, narrow, adnexed or slightly sinuate, sometimes short-decurrent, white to pale-salmon-colored; spores ellipsoid, uniguttulate, pale-salmon-colored, 6–7.5 × 4 μ; stipe short, stout, white, solid, downy above, the base bulbous and white-tomentose, 4–10 cm. long, 16–24 mm. thick.

TYPE LOCALITY: Meadowdale, New York.
HABITAT: Black muck soil in low woods.
DISTRIBUTION: New York.
ILLUSTRATION: Ann. Rep. N. Y. State Mus. **53**: *pl. D, f. 1–7.*

58. ENTOLOMA (Fries) Quél. Champ. Jura Vosg. 83. 1872.

Agaricus § *Entoloma* Fries, Epicr. Myc. 143. 1838.
Rhodophyllus Quél. Ench. Fung. 57. 1886.

Pileus fleshy, putrescent, solitary or gregarious; lamellae sinuate or adnexed; spores pink or salmon-colored, usually angular; stipe central, fleshy; veil none.

Type species, *Entoloma lividum* (Bull.) Quél.

Pileus cuspidate; yellow, yellowish, or salmon-colored.
  Pileus salmon-colored. — 1. *E. salmoneum.*
  Pileus some shade of yellow.
    Stipe 2–4 mm. thick.
      Pileus pale-yellow; lamellae pale-yellow. — 2. *E. Murraii.*
      Pileus yellow or smoky-yellow, sometimes tinged with green; lamellae whitish. — 3. *E. luteum.*
    Stipe 4–8 mm. thick. — 4. *E. alutaceum.*
Pileus not as above.
  Pileus 3 cm. or less broad.
    Pileus white, pallid, or yellowish.
      Pileus white or pallid.
        Surface of pileus striate; stipe 2 cm. long. — 5. *E. parvulum.*
        Surface of pileus not striate; stipe 3–5 cm. long. — 6. *E. subsericellum.*
      Pileus pale-rosy-isabelline.
        Pileus depressed. — 7. *E. pallidum.*
        Pileus conspicuously umbonate. — 8. *E. tortipes.*
      Pileus pale-yellowish-ochraceous. — 9. *E. subtruncatum.*
    Pileus pale-yellow when young, becoming reddish-brown with age. — 10. *E. variabile.*
    Pileus some shade of violet. — 11. *E. violaceum.*
    Pileus avellaneous, grayish-brown, smoky-white, or murinous; sometimes darker at the center.
      Stipe 2–3.5 cm. long.
        Pileus umbilicate. — 12. *E. suave.*
        Pileus hemispheric. — 13. *E. minus.*
        Pileus umbonate. — 14. *E. murinum.*
      Stipe 4–6 cm. long.
        Stipe melleous; species growing on dead wood. — 15. *E. adirondackense.*
        Stipe pallid; species growing among humus.
          Surface of pileus glabrous, shining.
            Stipe 3 mm. thick. — 16. *E. tenuipes.*
            Stipe 4–5 mm. thick. — 17. *E. fumosialbum.*
          Surface of pileus subfloccose, hygrophanous. — 18. *E. pallidibrunneum.*
    Pileus fuliginous, dark-brown, or blackish.
      Stipe 2–5 cm. long.
        Surface of pileus glabrous.
          Pileus not umbonate. — 19. *E. modestum.*
          Pileus umbonate.
            Stipe white. — 20. *E. diminutivum.*
            Stipe subfuliginous. — 21. *E. fuliginosum.*
        Surface of pileus minutely scabrous, fibrillose, or subsquamulose.
          Pileus 1–2 cm. broad. — 22. *E. scabrinellum.*
          Pileus 2–3 cm. broad.
            Lamellae deeply sinuate; species growing on decayed wood. — 23. *E. fibrillosum.*
            Lamellae adnate; species growing in swamps. — 24. *E. mirabile.*
      Stipe 5–10 cm. long.
        Pileus not umbonate; surface glabrous. — 25. *E. angustifolium.*
        Pileus umbonate; surface fibrillose or tomentose.
          Stipe purplish-brown, 5 cm. long. — 26. *E. atribrunneum.*
          Stipe pale-brown, 5–10 cm. long. — 27. *E. Peckianum.*
  Pileus 3–9 cm. broad.
    Pileus white or whitish.
      Pileus glabrous.
        Stipe 5 cm. or less long. — 28. *E. flavifolium.*
        Stipe 8 cm. long. — 29. *E. albidum.*
      Pileus densely pubescent. — 30. *E. pubescens.*
    Pileus isabelline, flavous, or melleous, sometimes darker on the disk.
      Stipe 3–4 cm. long.
        Pileus flavous, brownish-yellow on the umbo. — 31. *E. Burlinghamiae.*
        Pileus ochraceous, without umbo. — 32. *E. Earlei.*
      Stipe 5–8 cm. long.
        Pileus 5 cm. or less broad.
          Pileus umbonate, uniformly melleous-ochroleucous. — 33. *E. bicolor.*
          Pileus not umbonate.
            Stipe 5–10 mm. thick. — 34. *E. melleidiscum.*
            Stipe 4–6 mm. thick. — 35. *E. Davisii.*
        Pileus 5–8 cm. broad.
          Pileus isabelline to pallid. — 36. *E. fragile.*
          Pileus melleous, becoming dark-brown on drying. — 37. *E. melleicolor.*
    Pileus avellaneous-isabelline.
      Pileus not umbonate. — 38. *E. brevipes.*
      Pileus distinctly umbonate. — 39. *E. inocybiforme.*
    Pileus indigo-blue. — 40. *E. indigoferum.*
    Pileus pinkish-gray with dull-green disk, or the coloring may be reversed. — 41. *E. viridans.*
    Pileus reddish-brown; stipe very short, 2–4 cm. — 42. *E. rubribrunneum.*

Pileus avellaneous, grayish-brown, umbrinous, or pale-lead-colored.
Stipe 2–5 cm. long.
Stipe 3–6 mm. thick.
Pileus striate; solitary. 43. *E. pluteiforme.*
Pileus not striate; gregarious to subcespitose. 44. *E. commune.*
Stipe 6–10 mm. thick.
Pileus pale-lead-colored. 45. *E. plumbeum.*
Pileus grayish-brown.
Surface lacerate; context with alkaline taste. 46. *E. alcalinum.*
Surface smooth; context with farinaceous taste. 47. *E. griseum.*
Stipe 5–10 cm. long.
Stipe 2–6 mm. thick.
Pileus not umbonate. 48. *E. avellaneum.*
Pileus umbonate. 49. *E. strictius.*
Stipe 6–10 mm. thick.
Pileus 3–5 cm. broad.
Stipe white. 50. *E. rhodopolium.*
Stipe avellaneous. 51. *E. washingtonense.*
Pileus 5–8 cm. broad.
Pileus strongly umbonate, viscid. 52. *E. Cokeri.*
Pileus neither umbonate nor viscid. 53. *E. Grayanum.*
Pileus dark-gray, fuliginous, or olive-brown.
Pileus 3–5 cm. broad.
Stipe 2–4 mm. thick.
Pileus brownish when moist, paler when dry; species found in woods or pastures. 54. *E. sericiceps.*
Pileus smoky-black; species found in swamps. 55. *E. fumosonigrum.*
Stipe 4–8 mm. thick. 56. *E. nigricans.*
Pileus 5–10 cm. broad.
Surface of pileus imbricate-squamulose. 57. *E. subjubatum.*
Surface of pileus glabrous.
Pileus dark-gray to hair-brown or olive-brown; species known only from Ohio. 58. *E. subcostatum.*
Pileus gray or lead-colored to almost black; species known only from California. 59. *E. ferruginans.*
Pileus 10 cm. or more broad.
Stipe 1.5–3 cm. thick.
Pileus white with a yellowish tint; stipe bulbous. 60. *E. subsinuatum.*
Pileus yellowish-white, becoming brown with age. 61. *E. grande.*
Pileus yellowish-brown, darker at the center. 62. *E. Whiteae.*
Stipe 6 cm. thick. 63. *E. giganteum.*

1. **Entoloma salmoneum** (Peck) Sacc. Syll. Fung. **5**: 693. 1887.

Agaricus salmoneus Peck, Ann. Rep. N. Y. State Mus. **24**: 65. 1872.

Pileus thin, conic or campanulate, subacute or with a minute papilla or small cusp at the apex, gregarious, 1.5–3 cm. broad; surface glabrous, moist, salmon-colored, margin sometimes uneven or lobed; lamellae broad, subdistant, ventricose, salmon-colored; spores subglobose, angular, 10–12.5 μ in diameter; stipe slender, equal, glabrous, hollow, concolorous, 7.5–15 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Sandlake, New York.
HABITAT: Damp ground in dense woods, especially under spruce and balsam fir trees or among mosses.
DISTRIBUTION: New England to Ohio.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **24**: *pl. 4, f. 6–9;* Hard, Mushr. *f. 199.*
EXSICCATI: Ellis, N. Am. Fungi *301.*

2. **Entoloma Murraii** (Berk. & Curt.) Sacc. Syll. Fung. **14**: 127. 1899.

Agaricus Murraii Berk. & Curt. Ann. Mag. Nat. Hist. III. **4**: 289. 1859.
Agaricus cuspidatus Peck, Ann. Rep. N. Y. State Mus. **24**: 64. 1872. Not *A. cuspidatus* Bolt. 1788.
Entoloma cuspidatum Sacc. Syll. Fung. **5**: 688. 1887.

Pileus thin, conic or campanulate, with a distinct cusp at the apex, 2–5 cm. broad; surface moist, shining, glabrous, pale-yellow, margin thin, striate, exceeding the lamellae, often irregular or slightly lobed; lamellae ascending, broad, subdistant, narrowed toward the stipe, adnexed, often eroded or subdenticulate on the edges, pale-yellow, becoming flesh-colored; spores subglobose, angular, 10–12.5 μ in diameter; stipe equal, hollow, glabrous, slightly fibrous, concolorous, 7.5–15 cm. long, 2–4 mm. thick.

TYPE LOCALITY: New England.
HABITAT: Swamps and mossy places.
DISTRIBUTION: Maine to Alabama; also in Jamaica and British Honduras.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **24**: *pl. 2, f. 14–18.*

3. **Entoloma luteum** Peck, Ann. Rep. N. Y. State Mus. **54**: 146. 1901.

Pileus thin, conic or subcampanulate, obtuse or subumbonate to cuspidate, 2–4 cm. broad; surface moist, sometimes squamulose at the apex, yellow or smoky-yellow, a little paler after the escape of the moisture, sometimes tinged with green; lamellae ascending, moderately crowded, broad, whitish, becoming pale-salmon-colored; spores subquadrate, angular, 10–12.5 μ in diameter; stipe slender, equal, hollow, slightly fibrillose-striate, concolorous, with white mycelium at the base, 7.5–10 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Floodwood, Franklin County, New York.
HABITAT: On mossy ground in woods.
DISTRIBUTION: New England to Tennessee.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **54**: *pl. F, f. 1–8*.

4. **Entoloma alutaceum** Murrill, sp. nov.

Pileus convex, cuspidate, solitary, 3–6 cm. broad; surface smooth, shining, glabrous, pale-tan-colored, margin entire to undulate or lobed, concolorous; context thin, concolorous, the taste mild; lamellae sinuate, rather broad, subdistant, white to dirty-pink, entire on the edges; spores broadly ellipsoid, irregular, decidedly angular, rose-colored, 9–11 μ; stipe equal, often curved, glabrous, shining, concolorous or paler, solid, 5–8 cm. long, 4–8 mm. thick.

Type collected in wet moss at Redding, Connecticut, August 26, 1902, *F. S. Earle 1248* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Maine, Connecticut, and New York.

5. **Entoloma parvulum** Murrill, sp. nov.

Pileus small, thin, convex to plane, not umbonate, solitary, 2–2.5 cm. broad; surface white with a pale-ashy tint, dry, pruinose to glabrous, conspicuously striate to the disk, margin entire, concolorous; lamellae sinuate, several times inserted, rather narrow, not crowded, entire on the edges, white to salmon-colored; spores broadly ellipsoid, angular, apiculate, 10 × 8 μ; stipe short, slender, equal, white, smooth, glabrous, 2 cm. long, 2 mm. thick.

Type collected in rather sterile soil in woods near the New York Botanical Garden, September 13, 1910, *W. A. Murrill* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

6. **Entoloma subsericellum** Murrill, sp. nov.

Pileus thin, convex, 2–3 cm. broad; surface dry, appressed-tomentose, white or pallid, margin even, projecting; context pallid, the taste mild, farinaceous; lamellae sinuate, crowded, narrow, plane, white to pink, quite dark on drying; spores angular, pink, 8–10 × 7 μ; stipe cylindric, fibrillose, pallid, dark in dried specimens, solid, 3–5 cm. long, 2–3 mm. thick.

Type collected on the ground under hemlocks at Redding, Connecticut, July, 1902, *F. S. Earle 431* (herb. N. Y. Bot. Gard.).
HABITAT: Among mosses in woods.
DISTRIBUTION: New England and New York.

7. **Entoloma pallidum** Murrill, sp. nov.

Pileus thin, fragile, expanded and depressed, gregarious or subcespitose, 3 cm. broad; surface glabrous, pallid, tinged with rosy-isabelline, margin thin, even; context mild, farinaceous; lamellae adnexed, subdistant, ventricose, rather broad, white to pale-pink; spores pale-pink, suborbicular, slightly angular, 8 × 7 μ; stipe glabrous, white, hollow, fragile, tapering downward, 4–5 cm. long, 3–5 mm. thick.

Type collected in moist woods in West Park, New York, August, 1903, *F. S. Earle 1834* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

8. **Entoloma tortipes** Murrill, sp. nov.

Pileus convex to subexpanded, with a small, conspicuous, conic umbo, rather thin and fragile, reaching 3 cm. broad; surface smooth, with a satiny gloss, rosy-isabelline, margin

concolorous, entire, sometimes splitting with age; context very thin, pallid; lamellae sinuate, of medium breadth, subcrowded, slightly ventricose and rounded behind, entire on the edges, pallid to rose-colored; spores ellipsoid, angular, uniguttulate, usually apiculate, rose-colored, 9–11 × 5–7 μ; stipe decidedly tapering upward, conspicuously twisted, smooth, glabrous, polished, white or pale-avellaneous, solid, 6–7 cm. long, 3–6 mm. thick.

Type collected on a much decayed, deciduous stump by the Bronx River in the New York Botanical Garden, August 2, 1915, *W. A. Murrill* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

9. **Entoloma subtruncatum** Peck, Bull. N. Y. State Mus. 157: 47. 1912.

Pileus subconic, thin, truncate or slightly umbonate, solitary or gregarious, 2–3 cm. broad; surface glabrous, hygrophanous, pale-yellowish-ochraceous and striatulate when moist, paler and subshining when dry, the pellicle separable, margin incurved; lamellae thin, broad, adnexed, moderately crowded, unequal, whitish, becoming tinged with pink; spores angular, apiculate at each end, 12–14 × 8–10 μ; stipe slender, equal or slightly attenuate upward, terete or compressed, hollow, silky-fibrillose, pale-yellow, with a whitish, mycelioid tomentum at the base, 3–8 cm. long, 2–5 mm. thick.

TYPE LOCALITY: Stow, Massachusetts.
HABITAT: Under pine trees.
DISTRIBUTION: Vicinity of Stow, Massachusetts.

10. **Entoloma variabile** Peck, Ann. Rep. N. Y. State Mus. 54: 145. 1901.

Pileus thin, conic, ovate or subcampanulate, umbonate, obtuse or subumbilicate, 1.5–3 cm. broad; surface moist, slightly fibrillose, pale-yellow when young, becoming reddish-brown with age, either wholly or at the center only; lamellae ascending, rather crowded, broad in front, often eroded on the edges, white or whitish, becoming pale-salmon-colored; spores subglobose, angular, uninucleate, 10–12.5 μ; stipe long, slender, equal, hollow, slightly fibrillose-striate, whitish or pallid, sometimes becoming reddish-brown with age, often with a whitish mycelium at the base, 7.5–12.5 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Floodwood, Franklin County, New York.
HABITAT: In sphagnum marshes.
DISTRIBUTION: New York and Massachusetts.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. 54: *pl. F, f. 17–27.*

11. **Entoloma violaceum** Murrill.

Agaricus cyaneus Peck, Bull. Buffalo Soc. Nat. Sci. 1: 49. 1873. Not *A. cyaneus* Bull. 1783.
Entoloma cyaneum Sacc. Syll. Fung. 5: 692. 1887.

Pileus convex, 2–3 cm. broad; surface dry, minutely squamulose, violet or bluish-purple to brownish-violaceous; lamellae sinuate, crowded, whitish, becoming tinged with pink; spores angular, 9 × 6 μ; stipe equal or slightly thickened downward, hollow, squamulose and violaceous at the apex, white at the base, 3.5–6 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Pine Hill, New York.
HABITAT: On decaying wood or humus in woods.
DISTRIBUTION: New York and Massachusetts.

12. **Entoloma suave** Peck, Jour. Myc. 14: 2. 1908.

Pileus thin, broadly convex, umbilicate, 2.5 cm. broad; surface glabrous, shining, grayish-brown, margin decurved; lamellae rather crowded, slightly rounded behind, adnexed, yellowish, becoming flesh-colored; spores broadly ellipsoid or subglobose, even, 6–8 × 5–6 μ; stipe equal or nearly so, glabrous, stuffed, whitish or pale-yellow, about 2.5 cm. long, 2–3 mm. thick.

TYPE LOCALITY: Ellis, Massachusetts.
HABITAT: On old stumps in swampy places.
DISTRIBUTION: Massachusetts.

13. **Entoloma minus** Peck, Bull. N. Y. State Mus. 116: 23. 1907.

Pileus very thin, subconic or hemispheric, becoming convex, 1.5–2.5 cm. broad; surface glabrous, grayish-brown, darker at the center; lamellae thin, crowded, at first ascending, sinuate, adnexed, whitish, becoming flesh-colored; spores subglobose, angular, 7.5–10 μ in diameter; stipe slender, glabrous, hollow, white, 2.5–3.5 cm. long, about 2 mm. thick.

TYPE LOCALITY: East Schaghticoke, Rensselaer County, New York.
HABITAT: On the ground in woods.
DISTRIBUTION: New York and Massachusetts.

14. **Entoloma murinum** Peck, Bull. Torrey Club 34: 98. 1907.

Pileus thin, fragile, conic, convex or nearly plane, umbonate, 2–3 cm. broad; surface dry, silky in appearance, glabrous to the touch, grayish-brown or mouse-colored, margin thin, often wavy and split, striate in dried specimens; lamellae thin, crowded, sinuate, adnate, white, becoming pale-pink; spores angular, uniguttulate, often with an oblique apiculus at one end, 10–12 × 6–8 μ; stipe slender, brittle, equal or slightly tapering upward, straight or flexuous, hollow, white or whitish, becoming darker with age, 2–3.5 cm. long, 1.5–2 mm. thick.

TYPE LOCALITY: Falmouth, Massachusetts.
HABITAT: Among long grass and sphagnum.
DISTRIBUTION: Known only from the type locality.

15. **Entoloma adirondackense** Murrill, sp. nov.

Pileus small, rather thin, circular, sometimes becoming irregular, more or less umbonate, solitary, reaching 2–3 cm. broad; surface moist, glabrous, not striate, smooth, except at the center, pale-dull-avellaneous, concolorous on the umbo, margin entire, concolorous, becoming undulate with age; lamellae adnexed, several times inserted, ventricose, not crowded, soon becoming rose-colored; spores ellipsoid, conspicuously angular, uniguttulate, apiculate, rose-colored, 11–12 × 6–7 μ; stipe slender, cylindric, equal, smooth, glabrous, dull, translucent, melleous, whitish-mycelioid at the base, about 4 cm. long, 2–3 mm. thick.

Type collected on a stump in low balsam woods at Lake Placid, Adirondack Mountains, New York, October 3–14, 1912, *W. A. & Edna L. Murrill 1107* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Adirondack Mountains, New York.

16. **Entoloma tenuipes** Murrill, sp. nov.

Pileus thin, convex, sometimes slightly depressed with age, solitary, 3 cm. broad; surface dry, smooth, shining, sometimes striate and splitting, whitish-avellaneous to subfuliginous, margin concolorous, entire to undulate; context very thin, white, with farinaceous taste and no odor; lamellae sinuate, broad, slightly ventricose, subdistant, irregular, uneven on the edges; spores globose, angular, apiculate, rose-colored, 8–9 μ; stipe slender, equal, smooth, glabrous, concolorous, whitish-mycelioid at the base, 5 cm. long, 3 mm. thick.

Type collected among humus in woods at Lake Placid, Adirondack Mountains, New York, July 17–29, 1912, *W. A. & Edna L. Murrill 249* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: New York.

17. **Entoloma fumosialbum** Murrill, sp. nov.

Pileus rather thick, somewhat irregular, convex to plane or very slightly depressed, not umbonate, solitary, 3 cm. broad; surface smooth, glabrous but satiny in appearance, uniformly smoky-white, margin entire to undulate or slightly lacerate, pallid; lamellae sinuate with a decurrent tooth, broad, ventricose, crowded, white to salmon-colored, entire and concolorous on the edges; spores subglobose to broadly ellipsoid, angular, apiculate, uniguttulate, rose-colored, 7–9 × 5–7 μ; stipe equal, fleshy, glabrous, longitudinally grooved, satiny-white, 4–5 cm. long, 4–5 mm. thick.

Type collected on the ground in woods at Unaka Springs, Tennessee, August 18–24, 1904, *W. A. Murrill 793* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

18. **Entoloma pallidibrunneum** Murrill, sp. nov.

Pileus thin, convex to expanded, umbilicate, gregarious, 2–3 cm. broad; surface subfloccose, hygrophanous, pale-brown, margin entire, concolorous; lamellae adnexed, rather crowded, subventricose, pallid; spores broadly ellipsoid, irregular, angular, rose-colored, 9–11 μ; stipe slender, equal, hollow, pallid, farinose at the apex, whitish-mycelioid at the base, 4–6 cm. long, 3–4 mm. thick.

Type collected among humus in woods at West Park, New York, July 30, 1903, *F. S. Earle 1583* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

19. **Entoloma modestum** Peck, Bull. Torrey Club **34**: 347. 1907.

Pileus thin, campanulate or convex, obtuse, 1.5–2.5 cm. broad; surface glabrous, hygrophanous, dark-smoky-brown and striatulate when moist, isabelline or pale-grayish-brown when dry; lamellae rather broad, subdistant, adnate, at first pallid, becoming flesh-colored; spores angular, uninucleate, obliquely apiculate at one end, 10–14 × 8–9 μ; stipe slender, equal, hollow, glabrous, concolorous, 2.5–4 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Stow, Massachusetts.
HABITAT: In damp, shaded places.
DISTRIBUTION: New York and Massachusetts.

20. **Entoloma diminutivum** Peck, Bull. Torrey Club **34**: 99. 1907.

Pileus thin, fragile, convex, becoming nearly plane, umbonate, 1.3–3 cm. broad; surface hygrophanous, chestnut-brown or blackish and striatulate on the margin when young or moist, becoming paler and shining when the moisture has escaped, the small umbo darker than the rest of the pileus; context having a farinaceous odor; lamellae thin, narrow, subcrowded, slightly adnexed, subventricose, white, becoming pink; spores angular, uninucleate, 10–12 × 6–8 μ; stipe fragile, equal or slightly tapering upward, glabrous, shining, white or whitish, 1.3–3 cm. long, 2 mm. thick.

TYPE LOCALITY: Stow, Massachusetts.
HABITAT: On damp, black soil under trees.
DISTRIBUTION: Known only from the type locality.

21. **Entoloma fuliginosum** Murrill, sp. nov.

Pileus small, thin, convex to plane, umbonate, irregular in outline, solitary, 2 cm. broad; surface smooth, glabrous, shining, striate, uniformly fuliginous, the cuticle cracking radially with age, margin concolorous, undulate or folded; lamellae slightly sinuate, broad, ventricose, distant, entire on the edges, pallid to salmon-colored; spores globose, slightly angular, rose-colored, 6–8 μ; stipe short, equal, smooth, glabrous, subconcolorous, not shining, whitish-mycelioid below, 3 cm. long, 2–3 mm. thick.

Type collected among humus under balsam fir trees at Lake Placid, Adirondack Mountains, New York, October 3–14, 1912, *W. A. & Edna L. Murrill 967* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

22. **Entoloma scabrinellum** (Peck) Sacc. Syll. Fung. **5** : 693. 1887.

Agaricus scabrinellus Peck, Ann. Rep. N. Y. State Mus. **33**: 19. 1883.

Pileus thin, convex or nearly plane, papillate or with a small umbo, 1.2–2 cm. broad; surface minutely scabrous, dark-brown, margin thin, incurved, slightly surpassing the lamellae; lamellae broad, crowded, rounded behind, ventricose, adnexed, floccose on the edges, whitish, becoming pink; spores irregular, uninucleate, 7.5–10 × 5–7.5 μ; stipe equal, fibrillose, pruinose at the apex, paler than the pileus, about 2.5 cm. long and 2 mm. thick.

TYPE LOCALITY: Wading River, Suffolk County, New York.
HABITAT: In shaded, gravelly soil.
DISTRIBUTION: New York and Ohio.

23. **Entoloma fibrillosum** Murrill, sp. nov.

Pileus small, thin, regular, umbonate, solitary, 2–3 cm. broad; surface dry, smooth, not striate, uniformly fuliginous when young, becoming umbrinous with age except on the disk,

closely covered with minute, imbricate, fibrillose, fuliginous scales; lamellae deeply sinuate, ventricose, subdistant, pallid to salmon-colored, floccose or finely serrulate on the edges; spores ellipsoid, angular, apiculate, rose-colored, 10–12 × 7 μ; stipe slender, hollow, becoming flattened on drying, pubescent to subglabrous, subconcolorous, attached to a mat of white mycelium, 4 cm. long, 2–3 mm. thick.

Type collected on much decayed wood in woods at Camp Sebec, on the north shore of Sebec Lake, Piscataquis County, Maine, September 16, 17, 1905, *W. A. Murrill 2620* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

24. **Entoloma mirabile** Peck, Mycologia 5: 68. 1913.

Pileus conic or subcampanulate, with a prominent umbilicate umbo, thin, submembranous, 2–3 cm. broad; surface minutely furfuraceous or subsquamulose, blackish-brown; lamellae arcuate, adnate, subdistant, whitish, becoming pink; spores subglobose, angular, commonly uninucleate, 10–12 μ in diameter; stipe somewhat flexuous, equal, fibrillose, hollow, sometimes compressed and canaliculate, brown, a little paler than the pileus, with white mycelium at the base, 3–5 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Stow, Massachusetts.
HABITAT: In swamps under maple trees.
DISTRIBUTION: Known only from the type locality.

25. **Entoloma angustifolium** Murrill, sp. nov.

Pileus fleshy, convex, gregarious, 3 cm. broad; surface glabrous, moist, subrugulose, subfuliginous, margin even, incurved; lamellae sinuate, crowded, narrow, whitish; spores ellipsoid, angular, rose-colored, 10–11 × 6–7 μ; stipe subcylindric, slightly ventricose, glabrous, shining, pallid, solid, 7 cm. long, 7 mm. thick.

Type collected in humus in wet woods at Redding, Connecticut, August 25, 1902, *F. S. Earle 1228* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Connecticut and New Jersey.

26. **Entoloma atribrunneum** Murrill, sp. nov.

Pileus rather fleshy, subcampanulate, distinctly umbonate, solitary, 3 cm. broad; surface dark-brown, floccose-tomentose, margin concolorous, entire; lamellae deeply sinuate, broad, crowded, white to pale-pink, entire on the edges; spores globose, decidedly angular, apiculate, uniguttulate, rose-colored, copious, 8–10 μ; stipe tapering upward from a slightly enlarged base, floccose-scaly, purplish-brown, hollow, 5 cm. long, 3–4 mm. thick.

Type collected on the ground in woods in Van Cortlandt Park, New York City, July 6, 1902, *F. S. Earle 192* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

27. **Entoloma Peckianum** Burt; Peck, Ann. Rep. N. Y. State Mus. 54: 146. 1901.

Pileus thin, conic, becoming very convex or subcampanulate, umbonate, 1.5–3 cm. broad; surface moist, brown or blackish and shining, paler after the escape of the moisture, obscurely roughened with the matted ends of minute fibrils; lamellae ascending, subcrowded, broad, abruptly rounded behind, adnexed, whitish, becoming pink; spores angular, uninucleate, 10–12.5 × 7.5–10 μ; stipe slender, equal, hollow, fibrillose-striate, pale-brown, often with white mycelium at the base, white within, 5–10 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Floodwood, Franklin County, New York.
HABITAT: In sphagnum marshes.
DISTRIBUTION: Maine and New York.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. 54: *pl. F, f. 9–16.*

28. **Entoloma flavifolium** Peck, Bull. N. Y. State Mus. 105: 21. 1906.

Pileus thin, firm, broadly convex or nearly plane, 3–5 cm. broad; surface glabrous, hygrophanous, watery-white and sometimes striatulate on the margin when moist, white when the

moisture has disappeared; context concolorous, the taste mild or slightly and tardily acrid; lamellae thin, crowded, rounded behind, adnexed, slightly eroded on the edges, pale-yellow, becoming pinkish; spores subglobose, slightly angular, bright-pink, 7.5–10 μ long, apiculate at one end; stipe firm, equal, silky-fibrillose, stuffed or hollow, whitish, with a white mealiness at the apex, 3.5–5 cm. long, 4–8 mm. thick.

TYPE LOCALITY: Port Henry, Essex County, New York.
HABITAT: Among fallen leaves in dense woods.
DISTRIBUTION: New York.
ILLUSTRATIONS: Bull. N. Y. State Mus. 105: *pl. S, f. 9–15.*

29. Entoloma albidum Murrill, sp. nov.

Pileus convex to plane or slightly depressed, not umbonate, gregarious, 5 cm. broad; surface smooth, shining, glabrous, white, becoming tinged with avellaneous with age, margin entire or slightly lobed, concolorous; lamellae sinuate, rather narrow, crowded, salmon-colored, entire on the edges; spores globose, angular, apiculate, rose-colored, 7–8 μ; stipe equal or slightly tapering upward, smooth, white, glabrous, stuffed, about 8 cm. long and 1 cm. thick.

Type collected in rather thin soil at the edge of woods at Stockbridge, Massachusetts, September 3, 4, 1911, *W. A. Murrill & W. Gilman Thompson* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Vicinity of Stockbridge, Massachusetts.

30. Entoloma pubescens Murrill, sp. nov.

Pileus irregularly expanded, fleshy, gregarious or subcespitose, 5–8 cm. broad; surface densely silky-pubescent, cinereous, margin not striate; lamellae adnate or broadly adnexed, crowded, rather narrow, flesh-pink; spores subglobose, angular, pink, 7–8 × 6 μ; stipe densely hirsute-pubescent, whitish, solid, enlarged at the base, 4–6 cm. long, 8–12 mm. thick.

Type collected on the ground in Palmetto Swamp south of Auburn, Alabama, December 21, 1899, *F. S. Earle* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Vicinity of Auburn, Alabama.

31. Entoloma Burlinghamiae Murrill, sp. nov.

Pileus campanulate to nearly plane, umbonate, gregarious, 4 cm. broad; surface glabrous or minutely pruinose to glabrous, viscid when moist, slightly striate, flavous, brownish-yellow on the umbo, margin entire, concolorous, inflexed; lamellae adnexed, broad, crowded, several times inserted, white, becoming salmon-colored, the edges entire; spores ellipsoid, angular, granular, rose-colored, 7–9 × 5–6 μ; stipe very short and thick, slightly tapering upward, sometimes bulbous, white, with fine, cottony fibrils, solid or spongy, 3 cm. long, 1–2 cm. thick.

Type collected among ferns in a road through hemlock woods at Newfane, Vermont, July 16, 1906, *Gertrude S. Burlingham 41–1906* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

32. Entoloma Earlei Murrill, sp. nov.

Pileus convex, irregular, 5 cm. broad; surface glabrous, hygrophanous, ochraceous, paler when dry, margin even, irregular, thin; context firm, pallid, the taste mild; lamellae heterophyllous, adnexed, crowded, uneven, some of them ventricose, pallid; spores ellipsoid, somewhat oblong, angular, rose-colored, 8–9 × 6–7 μ; stipe somewhat flattened, glabrous, pruinose at the apex, pallid, hollow, 4 cm. long, 8–12 mm. thick.

Type collected in rather dry woods at the New York Botanical Garden, August 23, 1903, *F. S. Earle 1915* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

33. Entoloma bicolor Murrill, sp. nov.

Pileus rather thick and firm, regular in outline, umbonate, gregarious, reaching 5 cm. broad; surface smooth, dry, glabrous, shining, uniformly melleous-ochroleucous, margin concolorous, entire, striate only a very short distance; context white, with mild, farinaceous taste; lamellae sinuate, rather crowded, triangular, white to pink, wavy on the edges; spores globose or subglobose, angular, apiculate, 7.5–9 μ; stipe white with a satiny luster, smooth, glabrous, equal at maturity, solid, 8 cm. long, 1–1.5 cm. thick.

Type collected on a warm bank in thin maple woods at Lake Placid, Adirondack Mountains, New York, July 17–29, 1912, *W. A. & Edna L. Murrill 61* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: New York and New Jersey.

34. Entoloma melleidiscum Murrill, sp. nov.

Pileus convex to nearly plane, not umbonate, solitary, 5 cm. broad; surface smooth, dry, glabrous, melleous on the disk and paler toward the margin, which is striate and entire; lamellae sinuate, rather broad, not crowded, uneven on the edges, pale-rose-colored; spores globose, angular, uniguttulate, rose-colored, copious, 7–9 μ; stipe thick, fleshy, smooth, glabrous, equal, snow-white, stuffed, 6 cm. long, 5–10 mm. thick.

Type collected on the ground in woods near the New York Botanical Garden, 1911, *W. A. Murrill* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

35. Entoloma Davisii (Peck) Murrill.

Clitopilus Davisii Peck, Bull. Torrey Club **36**: 153. 1909.

Pileus thin, convex, becoming nearly plane, subumbilicate when dry, gregarious, 3–4 cm. broad; surface glabrous, creamy-white or buff; context white, the odor and taste farinaceous; lamellae narrow, thin, crowded, adnate or slightly decurrent, white, becoming flesh-colored; spores subglobose, angular, uninucleate, 8–10 μ broad; stipe slender, equal or slightly tapering upward, solid or stuffed, subbulbous, white or whitish, shining, becoming brown or brownish with age, often with a white mycelium at the base, 5–7 cm. long, 4–6 mm. thick.

TYPE LOCALITY: Stow, Massachusetts.
HABITAT: On the ground in woods.
DISTRIBUTION: Massachusetts and the mountains of North Carolina.

36. Entoloma fragile Murrill, sp. nov.

Pileus thin, fleshy, expanded, subobtuse or umbonate, 5–8 cm. broad; surface glabrous, hygrophanous, isabelline to pallid, margin even; context subconcolorous, the taste mild, slightly mawkish; lamellae sinuate, subcrowded, ventricose, pallid to dirty-pink; spores ellipsoid, angular, rose-colored, 8–10 × 7 μ; stipe cylindric, glabrous, concolorous, firm, fibrous, hollow, 5–8 cm. long, 6–12 mm. thick.

Type collected in woods in the New York Botanical Garden, August 10, 1902, *F. S. Earle 965* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Vicinity of New York City.

37. Entoloma melleicolor Murrill, sp. nov.

Pileus rather thick and fleshy, convex to expanded, slightly umbonate, gregarious or cespitose, 6–8 cm. broad; surface smooth, glabrous, melleous, becoming umbrinous, bay, or fuliginous on drying, margin concolorous, sometimes splitting with age; context having a strongly farinaceous taste; lamellae sinuate, broad, ventricose, not crowded, white to pink; spores globose, angular, copious, rose-colored, 7–8 μ; stipe subequal, smooth, white, glabrous, solid, slightly radicate at times, 6–8 cm. long, about 1 cm. thick.

Type collected in turf under crabapple trees at the edge of a golf course at Fort Dodge, Iowa, May 21, 1913, *O. M. Oleson* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

38. Entoloma brevipes Murrill, sp. nov.

Pileus convex, not fully expanding, not umbonate, gregarious to subcespitose, reaching 7 cm. broad; surface dry, smooth, polished, avellaneous-isabelline with umbrinous disk, margin entire, concolorous, not striate; context firm, with farinaceous odor and taste; lamellae deeply sinuate, of medium breadth, rather crowded, entire on the edges; spores globose, decidedly angular, apiculate, usually uniguttulate, rose-colored, copious, 7–8 μ; stipe equal or nearly so, smooth, glabrous, milk-white, solid, 4–5 cm. long, 7–10 mm. thick.

Type collected in soil in a clearing in woods near the New York Botanical Garden, September 10, 1910, *W. A. Murrill* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Vicinity of New York City.

39. Entoloma inocybiforme Murrill, sp. nov.

Pileus fleshy, fragile, convex to deeply depressed and irregular with age, distinctly umbonate, loosely clustered, abundant, 4–6 cm. broad; surface hygrophanous, glabrous, striate

to the small, conic umbo, avellaneous-isabelline, margin concolorous, conspicuously striate, upturned and irregular with age; context very thin, dull-whitish, decidedly farinaceous in taste but without odor; lamellae deeply sinuate, almost free, very broad, ventricose, rather distant, pallid to rose-colored; spores subglobose to broadly ellipsoid, decidedly angular, apiculate, uniguttulate, rose-colored, 8–10 × 7 μ; stipe equal or slightly enlarged at the base, smooth, glabrous, concolorous, solid, 4 cm. long, 5 mm. thick.

Type collected in wet loam among weeds under willows by the Bronx River in the New York Botanical Garden, August 7, 1915, *W. A. Murrill* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

40. **Entoloma indigoferum** (Ellis) Sacc. Syll. Fung. 5: 688. 1887.

Agaricus indigoferus Ellis, Bull. Torrey Club 6: 75. 1876.

Pileus convex-plane, gregarious or subcespitose, 7.5–10 cm. broad; surface rivulose, indigo-blue, at length fading more or less; context white, very thin toward the margin; lamellae hardly crowded, sinuate-emarginate, white, becoming flesh-colored, at length becoming ventricose and separating from the stipe; spores dull-flesh-colored, very irregular, 10 μ; stipe solid, brittle, fibrillose, white, more or less tinged with blue, 5–7.5 cm. long, 6–12 mm. thick.

TYPE LOCALITY: Newfield, New Jersey.
HABITAT: Among mosses in swamps.
DISTRIBUTION: New Jersey.

41. **Entoloma viridans** Lovejoy, Bot. Gaz. 50: 385. 1910.

Pileus fleshy, broadly convex, 3.5–5.5 cm. broad; surface hygrophanous when moist, silky-shining when dry, gray, the margin tinged with rose-pink and the disk becoming dull-green, or the coloring may be reversed, the disk rose-pink and the margin a dull-green, margin deflexed, entire, smooth; context white, becoming dull when dry; lamellae all even, light-pinkish-yellow, becoming salmon-pink, 2 mm. broad, slightly sinuate, adnate, then separating, the interspaces venose; spores coarsely warted, pink, 10 × 7 μ; stipe fleshy, white, pruinose, hollow, cylindric, quite bulbous at the base, attenuate upward, 4.5 cm. long, 1.5 cm. thick.

TYPE LOCALITY: Brooklyn Lake, Wyoming.
HABITAT: In damp humus.
DISTRIBUTION: Known only from the type locality.

42. **Entoloma rubribrunneum** Murrill, sp. nov.

Pileus fleshy, brittle when dry, convex, 3–4 cm. broad; surface glabrous, shining, often cracking when dry, reddish-brown, margin even or faintly striate; context white; lamellae adnate or subsinuate, subdistant, broad, whitish, becoming pink; spores subglobose, angular, pink, 8 × 7 μ; stipe short, cylindric or slightly tapering downward, glabrous, white, hollow, 2–4 cm. long, 4–8 mm. thick.

Type collected in oak woods at Opelika, Alabama, September 7, 1899, *F. S. Earle* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Alabama and Mississippi.

43. **Entoloma pluteiforme** Murrill, sp. nov.

Pileus convex, not fully expanding, umbonate, solitary, 5 cm. broad; surface dry, glabrous, striate, umbrinous-avellaneous, margin concolorous, undulate; lamellae adnexed, rather crowded, of medium breadth, entire on the edges, light-pink to salmon-colored; spores ellipsoid, angular, uniguttulate, rose-colored, 10–12 × 7–8 μ; stipe tapering upward from a somewhat enlarged base, smooth, whitish, glabrous, 5 cm. long, about 5 mm. thick.

Type collected on the ground in woods near the New York Botanical Garden, October 8, 1911, *W. A. Murrill & E. C. Volkert* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

44. **Entoloma commune** Murrill, sp. nov.

Pileus rather thin, convex, often umbonate, becoming depressed and irregular with age, gregarious to subcespitose, 3–5 cm. broad; surface dry, polished, glabrous, avellaneous-um-

brinous, usually darker on the umbo, the cuticle often cracking radially with age, margin concolorous, irregular, usually lobed or split in large specimens; context thin, white, with farinaceous odor and taste; lamellae more or less sinuate, rather narrow, not crowded, soon becoming rose-colored; spores globose, decidedly angular, apiculate, uniguttulate, rose-colored, copious, 6–8 μ; stipe equal, rather short, often twisted, pruinose at the apex, polished and asbestos-like below, white or pale-avellaneous, 4–5 cm. long, 3–6 mm. thick.

Type collected in wet soil in oak woods near the New York Botanical Garden, September 10, 1910, *W. A. Murrill* (herb. N. Y. Bot. Gard.).

HABITAT: On the ground in woods.

DISTRIBUTION: New England to the mountains of Virginia.

45. **Entoloma plumbeum** Earle, Bull. N. Y. Bot. Gard. **3**: 298. 1905.

Pileus irregular, often asymmetrical, expanded or at length depressed, subgregarious, 4–7 cm. broad; surface smooth, not hygrophanous, pale-lead-colored, often with a brownish tint, usually darker at the center, margin irregular, not striate; context white or cream-colored, unchanging, the taste and odor mild; lamellae narrowly sinuate, crowded, strongly heterophyllous, rather narrow, plane or subventricose, cream-colored, becoming tinged with salmon; spores pale-salmon-colored, ellipsoid, smooth, often with a large central vacuole, about 7 × 5 μ; stipe equal, subglabrous or subfibrillose, subconcolorous, sordid, solid, fleshy-fibrous, 2–3 cm. long, 6–7 mm. thick.

TYPE LOCALITY: Palo Alto, California.

HABITAT: In old pastures.

DISTRIBUTION: Known only from the type locality.

46. **Entoloma alcalinum** Murrill, sp. nov.

Pileus firm, convex, umbonate, gregarious or cespitose, 3–5 cm. broad; surface dry, lacerate, grayish-brown, margin concolorous, incurved, irregular, not striate; context white, with alkaline taste; lamellae sinuate, broad, rounded in front, subdistant, undulate on the edges, salmon-colored; spores subglobose angular, rose-colored, 8–10 μ; stipe cylindric, equal, white, striate, pruinose at the apex, solid or stuffed, 4 cm. long, 7 mm. thick.

Type collected on a lawn at Minneapolis, Minnesota, September 3, 1915, *Mary E. Whetstone & N. Darrow 63* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

47. **Entoloma griseum** Peck, Bull. N. Y. State Mus. **75**: 14. 1904.

Pileus fleshy, firm, broadly campanulate or convex, obtuse or slightly umbonate, often irregular, 4–7.5 cm. broad; surface glabrous, hygrophanous, grayish-brown when moist, paler when dry; context whitish, the odor and taste farinaceous; lamellae adnexed, emarginate, decurrent with a tooth, about 4 mm. broad, pale-pink; spores subglobose, angular, 7.5 μ in diameter; stipe equal or slightly tapering upward, silky-fibrillose, pruinose at the apex, stuffed or hollow, grayish-white, 2.5–5 cm. long, 6–10 mm. thick.

TYPE LOCALITY: Lake Pleasant, New York.

HABITAT: On the ground in moist woods.

DISTRIBUTION: Northern New York and the mountains of North Carolina.

48. **Entoloma avellaneum** Murrill, sp. nov.

Pileus convex to nearly plane, not umbonate, circular to somewhat irregular, solitary, reaching 3–4 cm. broad; surface smooth, dry, glabrous, not striate, uniformly avellaneous, margin concolorous, undulate or slightly lobed; lamellae not crowded, rather broad, ventricose, sinuate, white to salmon-colored, somewhat uneven on the edges; spores broadly ellipsoid, slightly angular or irregular, apiculate, rose-colored, 7 × 5 μ; stipe tapering upward, white, hollow, smooth, nearly glabrous above, densely clothed with whitish tomentum below and whitish-mycelioid at the base, 5–6 cm. long, 3–6 mm. thick.

Type collected on a much decayed coniferous log in coniferous woods at Lake Placid, Adirondack Mountains, New York, October 3–14, 1912, *W. A. & Edna L. Murrill 495* (herb. N. Y. Bot. Gard.).

HABITAT: On much decayed wood or humus.

DISTRIBUTION: Adirondack Mountains, New York.

49. **Entoloma strictius** (Peck) Sacc. Syll. Fung. 5: 698. 1887.

Agaricus strictior Peck, Ann. Rep. N. Y. State Cab. 23: 88. 1872.

Pileus submembranous, broadly convex or expanded, umbonate, 3–5 cm. broad; surface glabrous, shining, hygrophanous, grayish-brown and generally striatulate on the margin when moist, paler when dry; lamellae broad, rounded behind, adnexed or nearly free, rather distant, whitish, becoming flesh-colored; spores angular, 10–12.5 × 7.5–10 μ; stipe straight, equal or slightly tapering upward, silky-fibrillose or glabrous, hollow, concolorous or a little paler, often with a dense mycelioid tomentum at the base, 5–10 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Albany, New York.
HABITAT: In damp places in woods or their borders.
DISTRIBUTION: New England to Ohio.
ILLUSTRATIONS: Ann. Rep. N. Y. State Cab. 23: *pl. 2, f. 6–9;* Ann. Rep. N. Y. State Mus. 53: *pl. D, f. 8–15;* Atk. Stud. Am. Fungi ed. 1. *f. 138;* ed. 2. *f. 141.*

50. **Entoloma rhodopolium** (Fries) Quél. Champ. Jura Vosg. 227. 1872.

Agaricus rhodopolius Fries, Obs. Myc. 2: 103. 1818.

Pileus rather thin, usually umbilicate or depressed, regular, gregarious or subcespitose, 3–5 cm. broad; surface smooth, dry, glabrous, hygrophanous, avellaneous to umbrinous, darker on drying, margin entire to lobed or folded, sometimes slightly striate, concolorous; context with farinaceous taste; lamellae adnexed, slightly sinuate, distant, rather narrow, white or whitish, entire on the edges; spores globose or subglobose, angular, rose-colored, 7–9 μ; stipe long, equal or slightly tapering upward, hollow, smooth, glabrous, pruinose at the apex, white or whitish, 7–10 cm. long, 6–10 mm. thick.

TYPE LOCALITY: Europe.
HABITAT: In woods.
DISTRIBUTION: New England to Iowa and south to Ohio; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 342 (338);* Gill. Champ. Fr. *pl. 265 (275);* Pat. Tab. Fung. 1: *f. 338.*

51. **Entoloma washingtonense** Murrill, sp. nov.

Pileus rather thick and firm, regular, convex to subexpanded, not umbonate, solitary, 3.5 cm. broad; surface glabrous, not shining, striate, uniformly fuliginous-avellaneous, margin entire, concolorous, inflexed; lamellae subtriangular, very broad in front, attenuate-adnexed behind, subdistant, avellaneous, becoming colored by the spores, which are globose, angular, apiculate, uniguttulate, copious, 7–9 μ; stipe subequal, smooth, glabrous, hygrophanous, grayish-avellaneous, fleshy, hollow, 6 cm. long, 7 mm. thick.

Type collected on the ground in woods at Seattle, Washington, October 20–November 1, 1911, *W. A. Murrill 253* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

52. **Entoloma Cokeri** Murrill, sp. nov.

Pileus expanded, strongly umbonate, 7 cm. broad; surface glabrous, covered with a viscid cuticle which can be removed when dry, radially rugose except on the umbo when wet, smooth when dry, grayish-brown; context 1 cm. thick under the umbo, becoming very thin toward the margin, white, soft, the taste and odor distinctly farinaceous, not leaving an unpleasant taste; lamellae rather crowded, deeply sinuate and narrowly attached, 8 mm. wide at the center, white, becoming flesh-colored, eroded on the edges; spores subglobose, slightly angular, rose-colored, 6–7.5 μ; stipe nearly equal, glabrous, distinctly marked by inherent fibrils, concolorous above, nearly white below, firm, solid, white within, 7.5 cm. long, 1 cm. thick.

Type collected on the ground in mixed woods at Chapel Hill, North Carolina, October 29, 1915, *W. C. Coker 1943* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

53. **Entoloma Grayanum** (Peck) Sacc. Syll. Fung. 5: 698. 1887.

Agaricus Grayanus Peck, Ann. Rep. N. Y. State Mus. 24: 64. 1872.

Pileus convex to plane, gregarious, 5–8 cm. or more broad; surface smooth, glabrous, hygrophanous, dark-avellaneous to subumbrinous, margin entire, concolorous; context white,

the odor and taste farinaceous; lamellae adnate or slightly sinuate, subdistant, ventricose, white to rosy, the edges undulate; spores subglobose, angular, rose-colored, 7–9 μ; stipe equal or tapering downward, shining-white, longitudinally striate, glabrous, solid, white within, 6–10 cm. long, 1 cm. thick.

TYPE LOCALITY: Sandlake, New York.
HABITAT: On the ground.
DISTRIBUTION: Maine to Alabama in the eastern United States.
ILLUSTRATIONS: Atk. Stud. Am. Fungi ed. 1. *f. 137;* ed. 2. *f. 140;* Bull. N. Y. State Mus. 157: *pl. 126;* Mycologia 5: *pl. 92, f. 4.*
EXSICCATI: Shear, N. Y. Fungi *301.*

54. **Entoloma sericiceps** Murrill.

Agaricus sericeus Bull. Herb. Fr. *pl. 413, f. 2.* 1788. Not *A. sericeus* Schaeff. 1774.
Entoloma sericeum Quél. Champ. Jura Vosg. 86. 1872.

Pileus fleshy but thin, convex, becoming nearly plane, sometimes minutely umbilicate, 3–5 cm. broad; surface glabrous, hygrophanous, brownish when moist, paler, silky, and shining when dry, margin striate, incurved; context having a farinaceous odor and taste; lamellae rather broad, subdistant, adnexed, grayish, becoming salmon-colored; spores subglobose, angular, 7.5–10 × 6–7.5 μ; stipe short, equal, hollow, fibrillose, concolorous or paler, 2.5–5 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Europe.
HABITAT: In woods and pastures.
DISTRIBUTION: Canada to North Carolina and west to Washington and California; also in Europe.
ILLUSTRATIONS: Bull. Herb. Fr. *pl. 413, f. 2;* Cooke, Brit. Fungi *pl. 320b* (*340*)*;* Gill. Champ. Fr. *pl. 264* (*276*)*;* Ricken, Blatterp. Deutschl. *pl. 72, f. 5.*

55. **Entoloma fumosonigrum** Peck, Bull. N. Y. State Mus. 167: 42. 1913.

Pileus fleshy, thin, convex or nearly plane, 3–5 cm. broad; surface dry, subglabrous, smoky-black, margin involute; context white, the taste disagreeable; lamellae moderately crowded, sinuate-adnate, eroded on the edges, at first white, becoming pale-pink; spores subglobose, slightly angular, uninucleate, often with an oblique apiculus at one end, 8–10 μ long; stipe slender, equal or slightly tapering upward, stuffed, glabrous or fibrillose, pruinose at the apex, concolorous or a little paler, with a white, mycelioid tomentum at the base, sometimes entirely white, 4–5 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Stow, Massachusetts.
HABITAT: Under trees in swamps.
DISTRIBUTION: Known only from the type locality.

56. **Entoloma nigricans** Peck, Bull. Torrey Club 29: 72. 1902.

Pileus thin, convex, becoming irregularly expanded and centrally depressed, 3–4 cm. broad; surface innately silky-fibrillose, shining, dark-gray or blackish, the cuticle often radiately cracking, margin somewhat striate or sulcate in dried specimens; lamellae broad, subdistant, sinuate, adnate, salmon-colored; spores salmon-colored, angular, uninucleate, 8–12 μ long, nearly as broad; stipe equal, silky-fibrillose, at first solid, becoming hollow, shining, white streaked with black, sometimes scurfy at the apex, 2.5–5 cm. long, 4–8 mm. thick.

TYPE LOCALITY: St. Louis, Missouri.
HABITAT: In low ground in woods.
DISTRIBUTION: Known only from the type locality.

57. **Entoloma subjubatum** Murrill, sp. nov.

Pileus convex to expanded, usually somewhat umbonate, becoming quite irregular with age, gregarious, 5–7 cm. broad; surface dry, imbricate-squamulose, especially at the center, fuliginous when young, usually fading to avellaneous with age, the disk remaining darker, margin pallid, usually lobed or cracked in older specimens; context thin, white, without odor, but with a pleasant, nutty-farinaceous taste; lamellae deeply sinuate, broad, ventricose, not crowded, salmon-colored, dark-isabelline in dried specimens; spores ellipsoid, angular, 8–9 ×

6–7 μ; stipe cylindric, equal, slightly twisted at times, whitish or avellaneous, pruinose or fibrillose, solid, 6–8 cm. long, 1 cm. thick.

Type collected on the ground in woods in the New York Botanical Garden, September 10, 1912, *Mary E. Eaton* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: New York and Massachusetts.

58. **Entoloma subcostatum** Atk. Jour. Myc. 12: 236. 1906.

Pileus convex to expanded, plane or subgibbous, not umbonate, irregular, repand, gregarious or cespitose, 4–8 cm. broad; surface subviscid when moist, often subvirgate with darker lines, dark-gray to hair-brown or olive-brown, margin incurved; context white, rather thin, very thin toward the margin; the odor somewhat of old meal or nutty, not pleasant, the taste similar; lamellae light-salmon-colored, becoming dull, broad, narrowed toward the margin of the pileus, deeply sinuate, usually rounded, adnexed, easily becoming free, the edges usually plane, sometimes interveined, sometimes costate; spores subglobose, pale-rose-colored, angular, 8–10 μ in diameter; stipe concolorous but paler, 6–8 cm. long, 1–1.5 cm. thick.

TYPE LOCALITY: Columbus, Ohio.
HABITAT: On grassy ground.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATIONS: Hard, Mushr. *f. 198;* Jour. Myc. 12: *pl. 92.*

59. **Entoloma ferruginans** Peck, Bull. Torrey Club 22: 200. 1895.

Pileus fleshy, convex, obtuse or umbonate, often irregular, 5–10 cm. broad; surface hygrophanous, glabrous, shining, finely striate at times, gray or lead-colored to almost black; context whitish, fibrous and colored at the surface, the odor and taste farinaceous in young plants, at length nauseating; lamellae 8–14 mm. broad, adnexed, easily splitting transversely, subcrowded, grayish-salmon, becoming clay-colored; spores subglobose, irregular or angular, 7.5–10 μ long; stipe solid, glabrous, white to subconcolorous, blunt at the base or sometimes attenuate and radicate, 7.5–10 cm. long, 1–3 cm. thick.

TYPE LOCALITY: Pasadena, California.
HABITAT: Under oak trees.
DISTRIBUTION: California.

60. **Entoloma subsinuatum** Murrill, sp. nov.

Pileus thick, fleshy, convex to subexpanded, umbonate, cespitose, reaching 13 cm. broad; surface slightly viscid when moist, smooth, white with a yellowish tint, margin entire, white, not striate; context thick, white; lamellae emarginate, rounded behind, broad, rather crowded, white to salmon-colored; spores globose, decidedly angular, apiculate, rose-colored, copious, 7–8 μ; stipe smooth, glabrous or slightly fibrillose, shining, concolorous, solid or stuffed, equal, except at the bulbous base, white within, 15 cm. long, 3 cm. thick.

Type collected in leaf-mold in rich woods at Bar Harbor, Maine, August 17, 1901, *V. S. White 118* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Vicinity of Bar Harbor, Maine.

61. **Entoloma grande** Peck, Ann. Rep. N. Y. State Mus. 50: 101. 1897.

Pileus fleshy, thin toward the margin, convex, becoming nearly plane, generally umbonate, subcespitose, 10–15 cm. broad; surface usually centrally rugosely wrinkled, moist in wet weather, glabrous, yellowish-white, becoming brownish or grayish-brown; context white, the odor and flavor farinaceous; lamellae broad, subdistant, slightly adnexed, becoming free or nearly so, often wavy or eroded on the edges, whitish, becoming pinkish; spores subglobose, angular, 7.5–10 μ in diameter; stipe equal, solid, slightly fibrous externally, mealy at the apex, white, 10–15 cm. long, 1.5–2.5 cm. thick.

TYPE LOCALITY: Menands, New York.
HABITAT: In woods.
DISTRIBUTION: New York.
ILLUSTRATION: Bull. N. Y. State Mus. 139: *pl. 119.*

62. **Entoloma Whiteae** Murrill, sp. nov.

Pileus large, fleshy, convex, cespitose, reaching 12 cm. broad; surface glabrous, smooth, viscid when moist, yellowish-brown, slightly darker at the center and becoming much darker when dried, margin entire, incurved, concolorous; context white, thick, the taste mild and pleasant; lamellae emarginate to sinuate-adnate, broad, crowded, white to yellowish; spores globose, irregular, angular, apiculate, rose-colored, 8–10 μ; stipe equal, stout, solid, fleshy, white, subglabrous, reaching 10–12 cm. long and 2–3 cm. thick.

Type collected in rich woods at Bar Harbor, Maine, August 15, 1901, *V. S. White 110* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

63. **Entoloma giganteum** Murrill, sp. nov.

Pileus convex to subexpanded, very large, fleshy, 2 hymenophores growing together, each 20 cm. broad; surface smooth, moist, somewhat viscid, yellowish-white, slightly squamulose and pale-fawn-colored on the disk, margin pallid, undulate, not striate; context thick, white, the taste at first pleasant, then disagreeable and long-persistent; lamellae sinuate, several times inserted, very broad, ventricose, white to salmon-colored, and at length almost yellow; spores subglobose, slightly angular, apiculate, rose-colored, 10 μ; stipe very thick and fleshy, solid, whitish-isabelline, somewhat pruinose at the apex and roughly squamose at the base, deeply rooted and tapering downward, 15 cm. long, 6 cm. thick.

Type collected in leaf-mold in woods at Bar Harbor, Maine, September 15, 1901, *V. S. White 156* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

DOUBTFUL AND EXCLUDED SPECIES

Entoloma Batschianum (Fries) P. Karst. Bidr. Finl. Nat. Folk **32**: 261. 1879. (*Agaricus Batschianus* Fries, Epicr. Myc. 144. 1838.) Reported from Connecticut by Sprague and more recently from New Jersey by Peck. This species may have been confused with *E. indigoferum.*

Entoloma cinchonense Murrill, Mycologia **3**: 279. 1911. This species belongs in *Melanoleuca* rather than in *Entoloma.*

Entoloma clypeatum (L.) Quél. Champ. Jura Vosg. 85. 1872. (*Agaricus clypeatus* L. Fl. Suec. ed. 2. 446. 1775.) Reported by Peck and others from New York, Massachusetts, Ohio, North Carolina, and other states but the specimens seen do not correspond with authentic European material from Romell and Bresadola.

Entoloma demetriacum (Berk. & Mont.) Sacc. Syll. Fung. **5**: 682. 1887. (*Agaricus demetriacus* Berk. & Mont.; Mont. Syll. Crypt. 115. 1856.) Described from specimens collected on the ground among corn fodder at Columbus, Ohio.

Entoloma flavoviride Peck, Ann. Rep. N. Y. State Mus. **41**: 64. 1888. Described from specimens collected in low, swampy woods at Karner, New York. The type at Albany is poor, but it appears to be a depauperate form of *Entoloma luteum;* in which case the name would have precedence over *E. luteum.*

Entoloma flavum (Johnson) Sacc. Syll. Fung. **9**: 84. 1891. (*Agaricus flavus* Johnson, Bull. Minn. Acad. Sci. **1**: 329. 1878. Not *A. flavus* Lasch, 1829.) Described from specimens collected on the ground in woods in Minnesota.

Entoloma helodes (Fries) P. Karst. Bidr. Finl. Nat. Folk **32**: 260. 1879. (*Agaricus elodes* Fries, Syst. Myc. **1**: 196. 1821.) Reported from Connecticut, North Carolina, and Minnesota. Specimens from Romell are near *E. humidicola* but with conspicuous conic umbo.

Entoloma jubatum (Fries) P. Karst. Bidr. Finl. Nat. Folk **32**: 263. 1879. (*Agaricus jubatus* Fries, Syst. Myc. **1**: 196. 1821.) See *E. subjubatum.*

Entoloma nidorosum (Fries) Quél. Champ. Jura Vosg. 86. 1872. (*Agaricus nidorosus* Fries, Epicr. Myc. 148. 1838.) Reported by Peck and others from various parts of the United States, but specimens so named are quite different from authentic European material, being near *E. strictius*, with much more crowded lamellae.

Entoloma prunuloides (Fries) Quél. Champ. Jura Vosg. 83. 1872. (*Agaricus prunuloides*

Fries, Syst. Myc. 1: 198. 1821.) Reported from North Carolina and Minnesota. No specimens have been seen that agree with authentic material.

Entoloma Robinsonii (Berk. & Mont.) Sacc. Syll. Fung. 5: 683. 1887. (*Agaricus Robinsonii* Berk. & Mont.; Mont. Syll. Crypt. 114. 1856.) Described from specimens collected on decayed wood at Columbus, Ohio. The types at Paris are not far from *E. Grayanum*. Another specimen bearing the same number resembles *Gymnopus platyphyllus*, having an extremely long stipe.

Entoloma sericellum (Fries) Quél. Champ. Jura Vosg. 85. 1872. (*Agaricus sericeus sericellus* Fries, Obs. Myc. 2: 145. 1818. *A. sericellus* Fries, Syst. Myc. 1: 196. 1821.) Reported from New York and Massachusetts but none of the specimens agree with authentic European material from Bresadola and Romell.

Entoloma sinuatum (Bull.) Quél. Champ. Jura Vosg. 332. 1873. (*Agaricus sinuatus* Bull. Herb. Fr. *pl. 579, f. 1.* hyponym; 1793; Pers. Syn. Fung. 329. 1801.) Reported from New York, Massachusetts, and elsewhere by Peck and others. The European plant is 16 cm. or more broad, yellowish-white, glabrous, with a long, thick stipe and poisonous context.

59. PLUTEUS Fries, Gen. Hymen. 6. 1836.

Pileus fleshy, putrescent, easily separating from the stipe, solitary or gregarious; lamellae free; spores pink or salmon-colored; stipe central, fleshy; veil none.

Type species, *Agaricus cervinus* Schaeff.

I. SPECIES OCCURRING IN TEMPERATE NORTH AMERICA, EXCEPT THOSE CONFINED TO THE PACIFIC COAST

Pileus small, 1–2.5 cm. broad, rarely larger in *P. roseocandidus*.	
Pileus pure-white.	1. *P. niveus.*
Pileus white with a rosy tint.	
Stipe 1–2 mm. thick.	2. *P. sterilomarginatus.*
Stipe 3–4 mm. thick.	3. *P. roseocandidus.*
Pileus grayish-white, darker on the umbo.	4. *P. unakensis.*
Pileus deep-orange-yellow.	5. *P. aurantiacus.*
Pileus greenish-yellow, smoky-green on the disk.	6. *P. rugosidiscus.*
Pileus pale-melleous, slightly darker on the umbo.	7. *P. melleus.*
Pileus pale-isabelline, with blackish, hairy disk.	8. *P. lepiotiformis.*
Pileus cinnamon when moist, ochraceous when dry; stipe honey-yellow.	9. *P. melleipes.*
Pileus pale-bay, chestnut on drying.	10. *P. nanellus.*
Pileus yellowish-brown, dark-brown on drying, not reticulate.	11. *P. glabrescens.*
Pileus yellow or brown, rugose-reticulate.	12. *P. admirabilis.*
Pileus fawn-colored, with darker, scaly disk.	13. *P. squamosidiscus.*
Pileus avellaneous-umbrinous, umbrinous on the umbo.	14. *P. umbrinidiscus.*
Pileus dark-brown or fuliginous.	
Stipe pallid.	15. *P. atriavellaneus.*
Stipe dull-red.	16. *P. eximius.*
Pileus of medium size, 3–5 cm. broad.	
Pileus cinereous or whitish, long-striate, darker and squamulose on the disk.	17. *P. longistriatus.*
Pileus pale-isabelline, fulvous on the disk, not striate.	18. *P. pallidicervinus.*
Pileus pinkish-fawn-colored.	
Disk concolorous.	19. *P. campanulatus.*
Disk dark-brown.	20. *P. brunneidiscus.*
Pileus yellow or reddish-yellow.	21. *P. leoninus.*
Pileus golden-brown, darker on the disk.	22. *P. Whiteae.*
Pileus chrome-yellow with a smoky tint, the disk reticulate.	23. *P. flavofuligineus.*
Pileus orange or orange-red.	24. *P. caloceps.*
Pileus reddish-umbrinous, whitish on the disk.	25. *P. umbonatus.*
Pileus varying from yellow to brown, distinctly granulose.	26. *P. granularis.*
Pileus pale-ochraceous-brown; stipe 11 cm. long, 4 mm. thick.	27. *P. longipes.*
Pileus dark-tan; stipe 7 cm. long, 5–8 mm. thick.	28. *P. ludovicianus.*
Pileus grayish-brown, darker on the conspicuous umbo.	29. *P. griseibrunneus.*
Pileus avellaneous, paler on the disk, not umbonate.	30. *P. avellaneus.*
Pileus brownish.	
Pileus deliquescent; stipe not twisted.	31. *P. deliquescens.*
Pileus not deliquescent; stipe twisted.	32. *P. tortus.*
Pileus fuliginous or dark-brown.	
Pileus umbonate.	33. *P. fuliginosus.*
Pileus not umbonate.	34. *P. fibrillosus.*
Pileus large, 5–10 cm. broad.	
Pileus finely tomentose, white, 5–7.5 cm. broad.	35. *P. tomentosulus.*
Pileus slightly fibrillose to glabrous.	
Pileus grayish or brownish.	36. *P. cervinus.*
Pileus white, larger, with stipe 2 cm. thick.	37. *P. grandis.*

II. SPECIES OCCURRING ON THE PACIFIC COAST

Pileus 2–5 cm. broad.
  Stipe 2–7 cm. long, 2–5 mm. thick.
    Surface greenish-gray, becoming cinnamon-gray. — 38. *P. californicus.*
    Surface avellaneous-isabelline, tomentose. — 39. *P. latifolius.*
    Surface avellaneous-umbrinous, glabrous. — 40. *P. washingtonensis.*
  Stipe 9 cm. long, 10 mm. thick. — 41. *P. fulvibadius.*
Pileus 6–10 cm. broad. — 36. *P. cervinus.*
Pileus 10–20 cm. broad. — 42. *P. magnus.*

III. SPECIES OCCURRING IN TROPICAL NORTH AMERICA

Pileus about 1 cm. or less broad.
  Surface white, covered with soft, black hairs. — 43. *P. tephrostictus.*
  Surface reddish-white, glabrous. — 44. *P. alborubellus.*
  Surface orange-red. — 45. *P. laetifrons.*
  Surface date-brown. — 46. *P. aethalus.*
Pileus 2–3 cm. broad, reaching 4 cm. in *P. compressipes.*
  Surface whitish, yellowish on the disk. — 47. *P. myceniformis.*
  Surface rosy-isabelline, slightly darker on the disk. — 48. *P. compressipes.*
  Surface dark-brown or fuliginous, rarely varying to olivaceous.
    Stipe brownish, 2 cm. long, 2 mm. thick. — 49. *P. pulverulentus.*
    Stipe white.
      Surface of pileus glabrous.
        Surface striate. — 50. *P. multistriatus.*
        Surface rugose, not striate. — 51. *P. jamaicensis.*
      Surface of pileus floccose or finely asperate.
        Stipe 1–3 cm. long; pileus fuscous-brown or olivaceous. — 52. *P. nitens.*
        Stipe 3–4 cm. long; pileus pale-fuliginous to dark-chestnut. — 53. *P. Harrisii.*
Pileus 4–5 cm. broad.
  Stipe 3–5 mm. thick.
    Surface of pileus glabrous, smooth. — 54. *P. spinulosus.*
    Surface of pileus velvety, reticulate. — 55. *P. reticulatus.*
  Stipe 10 mm. or more thick. — 56. *P. rimosus.*
Pileus 6–10 cm. broad.
  Surface densely floccose, uniformly pale-yellow. — 57. *P. Earlei.*
  Surface subglabrous, not colored as above. — 36. *P. cervinus.*

1. **Pluteus niveus** Murrill, sp. nov.

Pileus thin, expanded, 2 cm. broad; surface minutely furfuraceous, white, margin not striate; lamellae free, subcrowded, broad, ventricose, white to pale-pink; spores broadly ellipsoid, 8 × 6 μ; stipe cylindric, glabrous, shining, white, solid, 5 cm. long, 2 mm. thick.

Type collected at West Park, New York, August 3, 1903, *F. S. Earle 1698* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

2. **Pluteus sterilomarginatus** Peck, Ann. Rep. N. Y. State Mus. 38: 136. 1885.

Agaricus sterilomarginatus Peck, Bull. Buffalo Soc. Nat. Sci. 1: 48. 1873.

Pileus thin, broadly convex or expanded, 1.2–2.5 cm. broad; surface covered with a minute, close-pressed tomentum, pinkish-white, margin thin, projecting beyond the lamellae; lamellae crowded, subventricose, minutely eroded on the edges, tapering toward the outer extremity, pale-flesh-colored; spores subglobose, angular, usually containing a single central nucleus, 6 μ; stipe short, equal, solid, glabrous, straight or curved, whitish, about 2.5 cm. long, 1–2 mm. thick.

TYPE LOCALITY: Portville, New York.
HABITAT: On decaying wood and sticks in woods.
DISTRIBUTION: Massachusetts, New York, and Virginia.

3. **Pluteus roseocandidus** Atk. Ann. Myc. 7: 373. 1909.

Pileus convex to expanded, upturned with age, gregarious, 2–3 cm. broad; surface pure-white, showing a tint of rose in wet weather, smooth, margin striate, thin; lamellae pure-white, becoming rose-colored, elliptic, not very crowded, very slightly adnexed, rounded behind; spores globose or subglobose, pale-flesh-colored, coarsely granular, smooth, 7–8 μ; stipe even, smooth, fibrous-striate, slightly mealy at the apex, hollow, fragile, hairy at the base, sometimes compressed, 3–4 cm. long, 3–4 mm. thick.

TYPE LOCALITY: Cascadilla woods, Ithaca, New York.
HABITAT: On grassy ground.
DISTRIBUTION: Known only from the type locality.

4. Pluteus unakensis Murrill, sp. nov.

Pileus thin, convex to expanded, umbonate, 2 cm. broad; surface densely silky-fibrillose, grayish-white, darker on the umbo, margin striate; lamellae free, crowded, narrow, white to pink; spores minute, subglobose, rose-colored, 4 × 3 μ; stipe cylindric, minutely fibrillose, white, 4–5 cm. long, 2–3 mm. thick.

Type collected in mixed woods at Unaka Springs, Tennessee, August 18-24, 1904, *W. A. Murrill 853* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

5. Pluteus aurantiacus Murrill, sp. nov.

Pileus convex, umbonate, not expanding, regular, gregarious, 2 cm. broad; surface glabrous, rugose, deep-orange-yellow, margin entire, striate; lamellae free, rather broad, subcrowded, pallid to salmon-colored, entire and concolorous on the edges; spores subglobose, rose-colored, 6–7 μ; stipe slender, equal, hollow, glabrous, shining, pale-yellow, fragile, 4–5 cm. long, scarcely 2 mm. thick.

Type collected on decayed wood among mosses in swampy ground at West Park, New York, August 1, 1903, *F. S. Earle 1664* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

6. Pluteus rugosidiscus Murrill, sp. nov.

Pileus small, thin, regular, convex to subexpanded, slightly umbonate, solitary, 1–1.5 cm. broad; surface glabrous, moist, greenish-yellow, smoky-green on the disk, with pruinose, reticulate, raised, radiating lines, margin entire, concolorous, not striate; lamellae free, broad, ventricose, crowded, inserted, white to salmon-colored, entire and concolorous on the edges; spores ellipsoid, smooth, rose-colored, apiculate, 7 × 3.5 μ; stipe slender, cylindric, equal, smooth, glabrous, greenish-yellow, whitish-tomentose at the base, 2.5 cm. long, 1 mm. thick.

Type collected on dead wood in deciduous woods at Falls Church, Virginia, July 2-6, 1904, *W. A. Murrill 111* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

7. Pluteus melleus Murrill, sp. nov.

Pileus rather small, convex to subexpanded, umbonate, regular, solitary, 1–2 cm. broad; surface glabrous, rugose, pale-melleous, slightly darker on the umbo, margin entire to undulate, concolorous; lamellae free, broad, ventricose, crowded, several times inserted, white to salmon-colored, entire and concolorous on the edges; spores broadly ellipsoid, smooth, rose-colored, 7 × 5–6 μ; stipe very slender, cylindric, equal, smooth, glabrous, pale-melleous, 2 cm. long, 1 mm. thick.

Type collected on much decayed wood in mixed woods at Unaka Springs, Tennessee, August 18-24, 1904, *W. A. Murrill 840* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Adirondack Mountains, New York, and the mountains of Tennessee.

8. Pluteus lepiotiformis Murrill, sp. nov.

Pileus small, convex, not fully expanding, not umbonate, solitary, 1–2 cm. broad, much resembling in a dried condition certain small species of *Lepiota;* surface not striate, pale-isabelline, with black, strigose, appressed hairs, which are more abundant on the disk, margin pallid, often lacerate with age; lamellae free, subcrowded, rather broad, white to pale-salmon-colored, fragile, entire and concolorous on the edges; spores globose, smooth, rose-colored, 7 μ; stipe very slender, equal, smooth, glabrous, white, about 3 cm. long and 1 mm. thick.

Type collected on the ground in wet woods in City Park, New Orleans, Louisiana, September 6, 1908, *F. S. Earle 74* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Vicinity of New Orleans, Louisiana.

9. Pluteus melleipes Murrill, sp. nov.

Pileus thin, broadly convex to expanded, obtuse, 1–2.5 cm. broad; surface hygrophanous, glabrous, rugose, cinnamon when moist, ochraceous when dry, margin not striate; lamellae

free, crowded, ventricose, whitish to brownish-pink; spores subglobose, rose-colored, about 6 μ; stipe cylindric, glabrous, honey-yellow, 2–4 cm. long, 2 mm. thick.

Type collected on rotten wood at West Park, New York, July 30, 1903, *F. S. Earle 1589* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: New York and Connecticut.

10. Pluteus nanellus Murrill, sp. nov.

Pileus small, convex, not fully expanding, slightly umbonate, solitary, 13 mm. broad; surface dry, apparently glabrous, but minutely tomentose under a lens, smooth, not striate, pale-bay, castaneous on drying, margin concolorous, rivulose; lamellae free, crowded, ventricose, white to salmon-colored, the edges white and serrulate; spores globose, smooth, rose-colored, 5–6 μ; stipe slender, equal, smooth, glabrous, flattened on drying, snow-white, 2 cm. long, 1–1.5 mm. thick.

Type collected on a dead log in woods at Lake Placid, Adirondack Mountains, New York, July 17–29, 1912, *W. A. & Edna L. Murrill 73* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Northern New York.

11. Pluteus glabrescens Murrill, sp. nov.

Pileus convex, 2 cm. broad; surface subviscid, glabrous, shining, yellowish-brown, becoming dark-brown on drying; lamellae free, crowded, subventricose, pale-pink; spores subglobose, 6–7 μ; stipe cylindric, glabrous, white with a flesh-colored tint, hollow, 7 cm. long, 4 mm. thick.

Type collected on rotten wood at West Park, New York, August, 1903, *F. S. Earle 1740* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

12. Pluteus admirabilis Peck, Ann. Rep. N. Y. State Mus. 38: 317. 1885.

Agaricus admirabilis Peck, Ann. Rep. N. Y. State Mus. 24: 64. 1872.

Pileus thin, convex or expanded, generally broadly umbonate, 1.2–2 cm. broad; surface glabrous, rugose-reticulate, yellow or brown, moist or hygrophanous, margin striatulate when moist, often obscurely striate when dry, lamellae crowded, broad, rounded behind, ventricose, whitish or yellowish, becoming flesh-colored; spores subglobose or broadly ellipsoid, 6–7.5 × 6 μ; stipe slender, glabrous, hollow, equal or slightly thickened at the base, yellow or yellowish-white, with white mycelium at the base, 2.5–5 cm. long, 1–2 mm. thick.

TYPE LOCALITY: Greig, New York.
HABITAT: On decaying wood and prostrate trunks in forests.
DISTRIBUTION: New York to Wisconsin and south to Virginia and Tennessee.

13. Pluteus squamosidiscus Murrill, sp. nov.

Pileus thin but firm, convex, 2.5 cm. broad; surface moist, fawn-colored, darker and covered with conic, darker brown scales on the disk, margin striate; lamellae free, crowded, moderately broad, pallid to dark-pink; spores broadly ellipsoid, smooth, rose-colored, 7–8.5 × 5–6.5 μ; stipe cylindric, glabrous, shining, pallid-white, solid, 3.5 cm. long, 2 mm. thick.

Type collected in a swamp at New Orleans, Louisiana, September 5, 1908, *F. S. Earle 55* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

14. Pluteus umbrinidiscus Murrill, sp. nov.

Pileus convex, with a small umbo, not fully expanding, 2.5 cm. broad; surface hygrophanous, glabrous, although appearing subtomentose, avellaneous-umbrinous, umbrinous on the umbo, margin entire, paler, distinctly striate for a distance of 7–8 mm.; lamellae free, broad, ventricose, subcrowded, white to salmon-colored, entire and slightly whitish-pubescent on the edges; spores broadly ellipsoid, smooth, rose-colored, 7–8 × 6 μ; stipe cylindric, equal, smooth, glabrous, snow-white, 5 cm. long, 3 mm. thick.

Type collected on a dead log at Lake Placid, Adirondack Mountains, New York, July 17–29, 1912, *W. A. & Edna L. Murrill* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

15. **Pluteus atriavellaneus** Murrill, sp. nov.

Pileus small, convex to expanded, not umbonate, regular, solitary, 1–2 cm. broad; surface hygrophanous, finely pubescent to glabrous, not rugose, uniformly fuliginous when young, becoming avellaneous with age, margin entire, concolorous, striate; lamellae free, broad, ventricose, subcrowded, white to salmon-colored, entire and whitish on the edges; spores subglobose, smooth, rose-colored, 7–8 μ; stipe slender, equal, smooth, glabrous, pallid, 3 cm. long, 1–2 mm. thick.

Type collected in humus in mixed woods at Unaka Springs, Tennessee, August 18–24, 1904, *W. A. Murrill 673* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

16. **Pluteus eximius** (Peck) Murrill.

Agaricus eximius Peck, Ann. Rep. N. Y. State Mus. **24**: 70. 1872.
Pilosace eximia Sacc. Syll. Fung. **5**: 1012. 1887.

Pileus fleshy, thin, convex or broadly campanulate, at length expanded and subumbonate, 6–12 mm. broad; surface smooth, dark-sooty-brown; lamellae crowded, broad, ventricose, rounded behind, free, dull-red or brownish-pink, becoming brown; spores ellipsoid, reddish, 6 × 4 μ; stipe slender, hollow, dull-red, slightly thickened at the base, 2.5 cm. long; 1 mm. thick.

TYPE LOCALITY: Greig, New York.
HABITAT: On old stumps in woods.
DISTRIBUTION: New York.

17. **Pluteus longistriatus** (Peck) Sacc. Syll. Fung. 5: 670. 1887.

Agaricus longistriatus Peck, Ann. Rep. N. Y. State Mus. **30**: 40. 1878.

Pileus thin, convex or expanded, not umbonate, 2.5–4 cm. broad; surface dry, cinereous or whitish, striate to the disk, which is usually darker than the margin and minutely squamulose or hairy; lamellae broad, ventricose, white, becoming salmon-colored; spores globose, smooth, 5–7 μ; stipe equal, glabrous, white, about 5 cm. long and 2 mm. thick, sometimes reaching 4 mm.

TYPE LOCALITY: Albany, New York.
HABITAT: On decaying wood.
DISTRIBUTION: New York to Alabama and west to Ohio.

18. **Pluteus pallidicervinus** Murrill, sp. nov.

Pileus convex to expanded, not umbonate, regular, gregarious, 5 cm. broad; surface smooth, finely tomentose, at least under a lens, pale-isabelline, dark-isabelline or fulvous on the disk, margin entire, concolorous, not striate; lamellae free, broad, ventricose, crowded, white to salmon-colored; spores subglobose, smooth, rose-colored, 7 μ; stipe cylindric, equal, smooth, glabrous, concolorous, solid, 7 cm. long, 5 mm. thick.

Type collected on rotten wood at West Park, New York, August 3, 1903, *F. S. Earle 1643* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

19. **Pluteus campanulatus** Murrill, sp. nov.

Pileus very thin, delicate, subtranslucent, campanulate, obtuse, 3 cm. broad; surface glabrous, pale-pinkish-fawn-colored, margin striate to the disk; lamellae free, crowded, narrow, watery-white to pink; spores globose, reddish-pink, 5 μ; stipe slightly tapering upward, glabrous, pallid or whitish, hollow, the base discoid and attached by a mat of mycelium, 3–5 cm. long, 2–3 mm. thick.

Type collected on rotten wood in wet woods at Redding, Connecticut, July, 1902, *L. M. Underwood & F. S. Earle 655* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

20. **Pluteus brunneidiscus** Murrill, sp. nov.

Pileus rather thin, convex to expanded, not umbonate, solitary, 3.5 cm. broad; surface smooth, glabrous, pinkish-fawn-colored, dark-brown on the disk, margin entire, pallid, faintly

striate, slightly lacerate with age; lamellae free, ventricose, broad, crowded, white to salmon-colored, entire and concolorous on the edges; spores oblong-ellipsoid, smooth, rose-colored, 7–8.5 × 4–6 μ; cystidia bifid or trifid; stipe cylindric, subequal, smooth, glabrous, white, hollow, 3.5 cm. long, 3 mm. thick.

Type collected on a mossy log at Redding, Connecticut, July 20, 1902, *F. S. Earle 524* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

21. **Pluteus leoninus** (Schaeff.) Quél. Champ. Jura Vosg. 82. 1872.

Agaricus leoninus Schaeff. Fung. Bavar. 4: Ind. 21. 1774.

Pileus thin, campanulate, becoming convex or expanded, 3–5 cm. broad; surface even, glabrous, moist or subhygrophanous, yellow or reddish-yellow, margin striate; lamellae rather broad, rounded behind, yellowish throughout or only on the edges, becoming flesh-colored; spores broadly ellipsoid, 7–8 × 6 μ; stipe equal, solid, slightly striate, white or yellowish, about 5 cm. long, 2–3 mm. thick.

TYPE LOCALITY: Bavaria.
HABITAT: On decaying wood in forests.
DISTRIBUTION: Northeastern United States; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 421* (*313*); Gill. Champ. Fr. *pl. 261* (*551*); Pat. Tab. Fung. 2: *f. 639*; Pers. Ic. Descr. Fung. *pl. 7, f. 4*; Ricken, Blätterp. Deutschl. *pl. 71, f. 5*; Schaeff. Fung. Bavar. *pl. 48*.

22. **Pluteus Whiteae** Murrill, sp. nov.

Pileus convex, not expanding, not umbonate, regular, solitary, 5 cm. broad; surface dry, minutely granular, golden-brown or ochraceous-fulvous, umbrinous-avellaneous on the disk, margin entire, concolorous, faintly striate; context with a mild taste; lamellae free, rather broad and crowded, white to salmon-colored; spores subglobose, smooth, rose-colored, 6–8 μ; stipe equal, smooth, glabrous, shining, white, somewhat compressed and twisted, hollow or stuffed, 7 cm. long, 8 mm. thick.

Type collected on decayed wood at Bar Harbor, Maine, August 11, 1901, *V. S. White 91* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

23. **Pluteus flavofuligineus** Atk. Jour. Myc. 8: 117. 1902.

Pileus oval to convex, sometimes slightly umbonate, very thin, solitary, 4–5 cm. broad; surface minutely tomentose when young, chrome-yellow with a smoky tint and with smoky radiating lines which anastomose more or less near the center, margin not striate; context thin; lamellae free, rounded at both ends, 3–5 mm. broad, not very crowded, deep-flesh-colored; spores ovoid, smooth, deep-flesh-colored, 5–7 × 4–6 μ; cystidia numerous, fusoid, blunt at the ends, hyaline, 80–100 × 12–20 μ; stipe pale-pink to flesh-colored, smooth, solid, becoming fistulose, 5–7 cm. long, 4–6 mm. thick.

TYPE LOCALITY: Coy Glen, Ithaca, New York.
HABITAT: On very much decayed wood in woods.
DISTRIBUTION: New York to Tennessee.

24. **Pluteus caloceps** Atk. Ann. Myc. 7: 373. 1909.

Pileus convex, umbonate, 2.5–4.5 cm. broad; surface smooth or appearing slightly granular in some places by the separation of the cells, or somewhat rimose toward the margin, orpiment-orange to vermilion, orange-vermilion at the center; context white; lamellae broadly elliptic to subventricose, rounded behind, free, minutely floccose on the edges, dull-flesh-colored; spores suboblong, 5–8 × 4–6 μ; stipe fibrous-striate, pallid, 2.5–6 cm. long, 3–5 mm. thick.

TYPE LOCALITY: Dead Lake, Michigan.
HABITAT: On the ground.
DISTRIBUTION: Known only from the type locality.

25. **Pluteus umbonatus** C. G. Lloyd, Myc. Notes 15. 1899.

Pileus campanulate, with a prominent, blunt umbo, 4 cm. broad; surface glabrous, strongly striate to the disk, reddish-umbrinous, except on the umbo, which is almost white, glabrous,

and smooth; context very thin, except at the center; lamellae broad, free, flesh-colored; spores globose, 5 μ; stipe white, solid, smooth, tapering upward, 7 cm. long, 3–6 mm. thick.

TYPE LOCALITY: Cincinnati, Ohio.
HABITAT: In leaf-mold.
DISTRIBUTION: Known only from the type locality.

26. **Pluteus granularis** Peck, Ann. Rep. N. Y. State Mus. 38: 135. 1885.

Agaricus granularis Peck, Bull. Buffalo Soc. Nat. Sci. 1: 49. 1873.
Pluteus regularis Sacc. Syll. Fung. 5: 673. 1887.

Pileus convex or nearly plane, subumbonate, 3–5 cm. broad; surface rugose-wrinkled, granulose or granulose-villose, varying in color from yellow to brown; lamellae rather broad, crowded, ventricose, whitish, becoming flesh-colored; spores subglobose or broadly ellipsoid, 6–7.5 × 5–6 μ; stipe equal, solid, concolorous, often paler at the apex, velvety-pubescent, rarely squamulose, 3.5–7.5 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Pine Hill, New York.
HABITAT: On decaying wood and prostrate trunks in woods.
DISTRIBUTION: New York, Ohio, and Wisconsin.
ILLUSTRATIONS: Conn. State Geol. & Nat. Hist. Surv. 15: *pl. 24;* Hard, Mushr. *f. 190.*

27. **Pluteus longipes** Murrill, sp. nov.

Pileus thin, expanded, obtuse, 4 cm. broad; surface dry, glabrous, pale-ochraceous-brown, margin striate; lamellae free, subcrowded, subventricose, pallid to brownish-pink; spores subglobose, rose-colored, 6–7 μ; stipe very long and slender, cylindric, glabrous, shining, white, hollow, 11 cm. long, 4 mm. thick.

Type collected on rotten trash in soil at Redding, Connecticut, July 22, 1902, *F. S. Earle 628* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

28. **Pluteus ludovicianus** Murrill, sp. nov.

Pileus rather firm, convex to expanded, somewhat plicate, solitary, 5 cm. broad; surface glabrous, hygrophanous, dark-tan, pale-fuliginous in dried specimens, margin paler, striate; lamellae free, broad, crowded, white to salmon-colored, entire and concolorous on the edges; spores globose or subglobose, smooth, rose-colored, 6–7 μ; stipe tapering upward from a sub-bulbous base, smooth, glabrous, shining, pallid or pale-brownish, hollow, 7 cm. long, 5–8 mm. thick.

Type collected in soil in a wet thicket at Chalmette, New Orleans, Louisiana, September 8, 1908, *F. S. Earle 130* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

29. **Pluteus griseibrunneus** Murrill, sp. nov.

Pileus rather thin and fragile, conic-campanulate, strongly umbonate in dried specimens, solitary, 4–5 cm. broad; surface dry, grayish-brown, darker on the disk, somewhat rimose but not striate, fibrillose; lamellae free, broad, ventricose, crowded, white to salmon-colored, entire and concolorous on the edges; spores ovoid, smooth, rose-colored, 6–7 × 3.5 μ; stipe cylindric, equal, whitish, solid, minutely pubescent, 6 cm. long, 5 mm. thick.

Type collected on a dead log in wet woods at City Park, New Orleans, Louisiana, September 6, 1908, *F. S. Earle 71* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

30. **Pluteus avellaneus** Murrill, sp. nov.

Pileus convex, not fully expanding, not umbonate, regular, gregarious, 3.5 cm. broad; surface smooth, glabrous, hygrophanous, avellaneous, paler on the disk, margin striate, concolorous, entire; lamellae free, broad, subventricose, crowded, white to salmon-colored, whitish-pruinose on the edges; spores broadly ellipsoid, smooth, rose-colored, uniguttulate, 7–8.5 × 6 μ; stipe equal, smooth, glabrous, white, 5 cm. long, 4 mm. thick.

Type collected on dead wood in woods at Lake Placid, Adirondack Mountains, New York, July 17–29, 1912, *W. A. & Edna L. Murrill 91* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

31. **Pluteus deliquescens** Murrill, sp. nov.

Pileus soft, watery, very fragile, deliquescent, broadly campanulate, 3.5 cm. broad; surface hygrophanous, glabrous, brownish, margin striate; lamellae free, broad, pallid or subconcolorous, watery; spores subglobose to broadly ellipsoid, smooth, rose-colored, 7 × 5–6 μ; stipe cylindric, glabrous, pallid, hollow, firm, 5 cm. long, 2–3 mm. thick.

Type collected on rotten wood in a swamp at New Orleans, Louisiana, September 5, 1908, *F. S. Earle 53* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Vicinity of New Orleans, Louisiana.

32. **Pluteus tortus** C. G. Lloyd, Myc. Notes 15. 1899.

Pileus convex to plane, umbonate, regular, cespitose, 3 cm. broad; surface conspicuously rugulose, brownish, darker on the umbo, margin concolorous, entire, striate; lamellae free, crowded, salmon-colored; stipe equal, curved and much twisted, smooth, shining, glabrous, white, solid, 5 cm. long, 3–4 mm. thick.

TYPE LOCALITY: Ohio.
DISTRIBUTION: Known only from the type locality.

33. **Pluteus fuliginosus** Murrill, sp. nov.

Pileus conic to campanulate, not expanding, umbonate, regular, solitary, 3–4 cm. broad; surface smooth, uniformly fuliginous, clothed with white hairs, margin concolorous, entire, striate; lamellae free, ventricose, crowded, white to salmon-colored, entire and concolorous on the edges; spores subglobose, smooth, rose-colored, uniguttulate, 7–8 μ; stipe tapering upward, smooth, glabrous, white or pale-yellowish, slightly squamulose and tinged with pale-avellaneous near the base, 6 cm. long, 4–7 mm. thick.

Type collected on a decayed white pine stump at Lake Placid, Adirondack Mountains, New York, July 17–29, 1912, *W. A. & Edna L. Murrill 118* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

34. **Pluteus fibrillosus** Murrill, sp. nov.

Pileus thin but rather firm, convex to expanded, not umbonate, solitary, 3 cm. broad; surface moist, faintly striate, uniformly dark-fuscous, pale-fuliginous in dried specimens, minutely innate-fibrillose, margin entire to undulate or slightly lobed, faintly striate; lamellae free, rather broad, ventricose, crowded, white to salmon-colored, entire and concolorous on the edges; spores globose or slightly subglobose, smooth, rose-colored, 6–7 μ; stipe tapering upward, smooth, glabrous, white, solid, 7 cm. long, 4–6 mm. thick.

Type collected in soil in a wet thicket at Chalmette, New Orleans, Louisiana, September 8, 1908, *F. S. Earle 129* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

35. **Pluteus tomentosulus** Peck, Ann. Rep. N. Y. State Mus. 38: 136. 1885.

Agaricus tomentosulus Peck, Ann. Rep. N. Y. State Mus. **32**: 27. 1880.
Pleurotus tomentosulus Sacc. Syll. Fung. **9**: 46. 1891. (By mistake.)

Pileus thin, convex or nearly plane, subumbonate, 5–7.5 cm. broad; surface minutely villose or squamulose-tomentose, white; lamellae rather broad, rounded behind, crowded, white, becoming flesh-colored; spores subglobose or broadly ellipsoid, usually uninucleate, 6–8 × 6 μ; stipe equal, solid, striate, slightly pubescent or subtomentose, white, 5–12.5 cm. long, 4–8 mm. thick.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: On decaying wood and prostrate trunks.
DISTRIBUTION: New York and Connecticut.
ILLUSTRATIONS: Atk. Stud. Am. Fungi ed. 1. *f. 133;* ed. 2. *f. 136;* Conn. State Geol. & Nat. Hist. Surv. **15**: *pl. 26.*

36. **Pluteus cervinus** (Schaeff.) Quél. Champ. Jura Vosg. 81. 1872.

Agaricus cervinus Schaeff. Fung. Bavar. **4**: Ind. 6. 1774.

Pileus rather thin and fragile, bell-shaped to expanded, 6–10 cm. or more broad; surface slightly viscid at times, smooth or slightly radiate-fibrillose, avellaneous to subfuliginous, rarely

white, sometimes streaked, darker on the disk; context white, almost tasteless; lamellae free, broad, white when young, becoming salmon-pink; spores broadly ellipsoid, smooth, flesh-colored, 6–8 × 5–6 μ; cystidia ellipsoid, stout, thick-walled, hyaline, forked at the tip; stipe equal or enlarged at the base, white at the apex, more like the pileus below, usually glabrous, nearly solid, brittle, 8–15 cm. long, 7–12 mm. thick.

TYPE LOCALITY: Bavaria.
HABITAT: In open woods about stumps and on decaying wood of various kinds.
DISTRIBUTION: Throughout temperate and tropical North America; also in Europe.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. 54: *pl. 74, f. 9–19;* Atk. Stud. Am. Fungi ed. 1. *f. 132;* ed. 2. *f. 135;* Boud. Ic. Myc. 1: *pl. 87* (as *Agaricus patricius*); Cooke, Brit. Fungi *pl. 301, 565 (302), 302 (303), 357 (304), 303 (305);* Gill. Champ. Fr. *pl. 260, 547 (548);* Lucand, Champ. Fr. *pl. 105, 187;* N. Marshall, Mushr. Book *pl. 25;* Mycologia 1: *pl. 3, f. 2;* Pat. Tab. Fung. 1: *f. 335;* Schaeff. Fung. Bavar. *pl. 10;* Sow. Engl. Fungi *pl. 108.*

37. **Pluteus grandis** Peck, Bull. N. Y. State Mus. 105: 27. 1906.

Pileus fleshy, firm, convex, with the margin sometimes curved upward, about 10 cm. broad; surface silky-fibrillose, white or whitish, margin thin; context white, the taste farinaceous; lamellae thin, crowded, free, denticulate on the edges, whitish, becoming flesh-colored; spores subglobose, angular, uninucleate, 7.5 μ; stipe rather long, equal, firm, solid, silky-fibrillose, white, 10 cm. long, 2 cm. thick.

TYPE LOCALITY: Bolton Landing, New York.
HABITAT: Among fallen leaves in woods.
DISTRIBUTION: Known only from the type locality.

38. **Pluteus californicus** McClatchie, Proc. So. Calif. Acad. 1: 384. 1897.

Pileus convex to expanded, 2–3 mm. thick, 2–4 cm. broad; surface hygrophanous, rugose-veined, greenish-gray, becoming cinnamon-gray, margin thin, short-striate; lamellae crowded, thin, elliptic, 3–5 mm. broad, grayish-white to flesh-gray; spores globose or broadly ovoid, irregular, 5–8 μ; cystidia numerous, fusoid, capitate; stipe substraight, shining, pale-yellowish-gray, hollow, fibrous, 2–6 cm. long, 2–3 mm. thick.

TYPE LOCALITY: Pasadena, California.
HABITAT: On the ground among decayed leaves and branches.
DISTRIBUTION: Southern California.

39. **Pluteus latifolius** Murrill, sp. nov.

Pileus thick, convex to nearly plane, regular, not umbonate, solitary, 4 cm. broad; surface dry, tomentose, smooth, avellaneous-isabelline, the disk radiate-rugose with fuliginous lines, margin entire, concolorous, not projecting; lamellae free, very broad and ventricose, crowded, fragile, whitish to salmon-colored; spores broadly ellipsoid, smooth, rose-colored, 7 × 5–6 μ; stipe equal, rather slender, firm, hollow, densely short-tomentose, concolorous, 5 cm. long, 5 mm. thick.

Type collected on dead alder in woods at Seattle, Washington, October 20–November 1, 1911. *W. A. Murrill 510* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

40. **Pluteus washingtonensis** Murrill, sp. nov.

Pileus rather thick, convex, regular, solitary, 3 cm. broad; surface moist, glabrous, radiate-striate, avellaneous-umbrinous, slightly darker on the disk, at least in dried specimens, margin entire, concolorous; lamellae free, crowded, subventricose, white to salmon-colored, entire and concolorous on the edges; spores oblong-ellipsoid, smooth, rose-colored, apiculate, uniguttulate, copious, 7–8.5 × 5–6 μ; stipe equal or slightly tapering upward, smooth, glabrous, white, 5–7 cm. long, 2–4 mm. thick.

Type collected on decayed wood in woods at Seattle, Washington, October 20–November 1, 1911, *W. A. Murrill 348* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Vicinity of Seattle, Washington.

41. **Pluteus fulvibadius** Murrill, sp. nov.

Pileus conic to campanulate, not fully expanding, umbonate, regular, solitary, 5 cm. broad, 3 cm. high; surface glabrous, hygrophanous, fulvous-badious, castaneous on the umbo, distinctly rugose-radiate or reticulate-rugose, margin concolorous, not striate, splitting with age; lamellae just free, crowded, ventricose, not very broad, citrinous to salmon-colored, entire and white on the edges; spores subglobose, smooth, rose-colored, uniguttulate, 7 μ; stipe long and thick, fleshy, hollow, glabrous, longitudinally striate, subequal, citrinous, 9 cm. long, about 1 cm. thick.

Type collected on the ground in woods at Glen Brook, Oregon, November 7, 1911, *W. A. Murrill 760* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

42. **Pluteus magnus** McClatchie, Proc. So. Calif. Acad. 1: 383. 1897.

Pileus 8–12 mm. thick at the center, very thin toward the margin, convex to expanded, cespitose, 10–20 cm. broad; surface fibrillose, glabrous or breaking into scales, white or smoky; lamellae subattached, crowded, white to pale-salmon-colored, 10–22 mm. wide; spores irregular, globose or oblong, 5–8 × 5 μ; cystidia 60–80 μ, the apex obtuse or acute; stipe flexuous, subequal, fibrillose, solid, white or subochraceous or brownish from the fibrils, 10–20 cm. long, 18–22 mm. thick.

TYPE LOCALITY: Los Angeles, California.
HABITAT: On decayed wood.
DISTRIBUTION: Known only from the type locality.

43. **Pluteus tephrostictus** (Berk. & Curt.) Sacc. Syll. Fung. **5**: 669. 1887.

Agaricus tephrostictus Berk. & Curt. Jour. Linn. Soc. **10**: 289. 1868.

Pileus umbonate, 12 mm. broad; surface white, covered with soft, black, glandular hairs; lamellae white to pale-flesh-colored; spores globose; stipe white, slightly glandular, enlarged at the base, 12 mm. long, 2 mm. thick.

TYPE LOCALITY: Cuba.
HABITAT: On the under side of old logs.
DISTRIBUTION: Cuba.

44. **Pluteus alborubellus** (Mont.) Pat. Bull. Soc. Myc. Fr. **15**: 196. 1899.

Agaricus alborubellus Mont. Ann. Sci. Nat. IV. **1**: 96. 1854.

Pileus very thin, membranous, expanded, subumbonate, 5–10 mm. broad; surface glabrous, uniformly reddish-white, margin striatulate, becoming much split; lamellae several times inserted, free, convex-attenuate at the ends, concolorous; spores subglobose, 6–8 × 5–6 μ; stipe equal, the base dilated to a disk, glabrous, concolorous, fistulose, 1.5–2 cm. long, 1 mm. thick.

TYPE LOCALITY: French Guiana.
HABITAT: On dead branches of *Bignonia* or other trees in woods.
DISTRIBUTION: Guadeloupe; also in South America.

45. **Pluteus laetifrons** (Berk. & Curt.) Sacc. Syll. Fung. **5**: 677. 1887.

Agaricus laetifrons Berk. & Curt. Jour. Linn. Soc. **10**: 289. 1868.

Pileus very small, conic to plane, 3–12 mm. broad; surface glabrous, orange-red, margin radiate-striate; lamellae broad, yellow; spores globose; stipe slender, glabrous, red, slightly enlarged at the base, 2.5 cm. long, 1 mm. thick.

TYPE LOCALITY: Cuba.
HABITAT: On decayed wood.
DISTRIBUTION: Cuba.

46. **Pluteus aethalus** (Berk. & Curt.) Sacc. Syll. Fung. 5: 674. 1887.

Agaricus aethalus Berk. & Curt. Jour. Linn. Soc. 10: 289. 1868.

Pileus very small, depressed around the umbo, 8 mm. broad; surface pulverulent, spadiceous; lamellae broad; spores globose, 5 μ; stipe slender, concolorous, 12 mm. long, 6 mm. thick.

TYPE LOCALITY: Cuba.
HABITAT: On decayed wood.
DISTRIBUTION: Mexico and Cuba.

47. **Pluteus myceniformis** Murrill, sp. nov.

Pileus thin, fragile, convex, not expanding, regular, solitary, 3 cm. broad; surface glabrous, smooth or slightly striate, nearly white, yellowish on the disk, margin white, incurved, entire to slightly lacerate; lamellae broad, subdistant, very thin and fragile, white to pale-salmon-colored, entire and concolorous on the edges; spores subglobose to broadly ellipsoid, smooth, uniguttulate, rose-colored, 8–10 × 7–8 μ; stipe short, subequal, smooth, glabrous, white, 2–3 cm. long, 2–3 mm. thick.

Type collected on a dead log at Cinchona, Jamaica, 1,500 m. elevation, December 25, 1908, *W. A. & Edna L. Murrill 504* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

48. **Pluteus compressipes** Murrill, sp. nov.

Pileus convex to subexpanded, not umbonate, gregarious, 3–4 cm. broad and 1 cm. thick; surface glabrous, striate, rosy-isabelline, somewhat darker on the disk, margin entire, concolorous; lamellae free, of medium distance, broad, white to salmon-colored; spores globose to subglobose, smooth, rose-colored, 6–8 μ; stipe slender, tapering upward, compressed, smooth, glabrous, white, attached by a white mat of mycelium, 3 cm. long, 2–3 mm. thick.

Type collected on dead wood in Castleton Gardens, Jamaica, December 15, 1908, *W. A. & Edna L. Murrill 118* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

49. **Pluteus pulverulentus** Murrill, sp. nov.

Pileus thin, convex to expanded, obtuse, solitary, 2–3 cm. broad; surface dark-brown, glabrous and rugose-reticulate on the disk, brown-pulverulent on the margin, not striate; lamellae free, subcrowded, broad, ventricose, white to salmon-colored, entire and concolorous on the edges; spores globose, minute, smooth, rose-colored, 5 μ; stipe cylindric, glabrous, subconcolorous, 2 cm. long, 2 mm. thick.

Type collected on the ground in shade at The Bower, St. George's, Grenada, West Indies, September 10, 1905, *W. E. Broadway* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

50. **Pluteus multistriatus** Murrill, Mycologia 3: 277. 1911.

Pileus convex, depressed about the umbo, somewhat clustered, 3 cm. broad; surface fuliginous, subglabrous, with numerous shallow furrows, or striations, extending from the umbo to the margin; lamellae free, close, broad, pallid; spores globose or subglobose, smooth, uninucleate, 5–7 μ; cystidia none; stipe slender, equal, glabrous, white, 4 cm. long, 2–3 mm. thick.

TYPE LOCALITY: Jalapa, Vera Cruz, Mexico.
HABITAT: On a decayed railway tie.
DISTRIBUTION: Known only from the type locality.

51. **Pluteus jamaicensis** Murrill, Mycologia 3: 278. 1911.

Pileus thin, expanded, obtuse, subcespitose, 2–3 cm. broad; surface dark-brown, paler with age, rugose, crustose-areolate, not striate; lamellae free, subcrowded, broad, ventricose, white to pink; spores globose, smooth, 4 μ; cystidia none; stipe white, enlarged above and below, solid, glabrous except at the base, which is conspicuously whitish-tomentose, 2 cm. long, 2 mm. thick.

TYPE LOCALITY: Castleton Gardens, Jamaica.
HABITAT: On rotten wood.
DISTRIBUTION: Known only from the type locality.

52. Pluteus nitens Pat. Bull. Soc. Myc. Fr. 14: 53. 1898.

Pileus thin, convex, 2–3 cm. broad; surface somewhat floccose, fuscous-brown or olivaceous, margin striate; lamellae remote, crowded, ventricose; spores 6–8 μ; stipe slender, enlarged at the base, shining, white, stuffed, 1–3 cm. long.

TYPE LOCALITY: Motzorongo, Vera Cruz, Mexico.
HABITAT: On dead wood.
DISTRIBUTION: Mexico and Cuba.

53. Pluteus Harrisii Murrill, Mycologia 3: 277. 1911.

Pileus convex to depressed, obtuse, 2–3 cm. broad; surface avellaneous-fuliginous to dark-chestnut, glabrous, subrugose, finely asperate and striate; lamellae free, subcrowded, slightly ventricose, white to salmon-colored; spores broadly ellipsoid to subglobose, regular, smooth, uninucleate, about 7–8 × 5–6 μ; cystidia none; stipe cylindric, solid, white, glabrous, shining, 3–4 cm. long, 2–3 mm. thick.

TYPE LOCALITY: Troy and Tyre, Jamaica.
HABITAT: On dead wood.
DISTRIBUTION: Jamaica and Cuba.

54. Pluteus spinulosus Murrill, sp. nov.

Pileus firm, convex, solitary, 4–5 cm. broad; surface glabrous, subviscid, avellaneous, darker on the disk, margin not striate; lamellae free, crowded, narrow, white to salmon-colored, brownish and pruinose on the edges; spores ellipsoid, smooth, rose-colored, 8 × 6 μ; cystidia bottle-shaped, acuminate or needle pointed with scattered, lateral spinules, 75 × 17 μ; stipe cylindric, enlarged at the base, glabrous, concolorous, solid, 4–5 cm. long, 3–4 mm. thick.

Type collected in British Honduras, 1906, *Morton E. Peck* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

55. Pluteus reticulatus Murrill, Mycologia 3: 276. 1911.

Pileus plane to depressed, umbonate, solitary, 5 cm. broad, about 1 cm. thick; surface velvety, dark-isabelline with pale-fuliginous reticulations, which are more pronounced on the umbrinous umbo; lamellae free, ventricose, salmon-colored; spores subglobose, smooth, uninucleate, 4–5 × 3.5–4 μ; cystidia fusiform, pointed, not divided at the apex, rather abundant, about 60 × 17 μ; stipe cylindric, subequal, glabrous, stramineous with a pale-melleous tint, 4 cm. long, 5 mm. thick.

TYPE LOCALITY: Moneague, Jamaica.
HABITAT: On dead wood.
DISTRIBUTION: Known only from the type locality.

56. Pluteus rimosus Murrill, Mycologia 3: 276. 1911.

Pileus conic to convex, 4–5 cm. broad, 2–3 cm. high, gregarious; surface fuliginous when young, becoming umbrinous, smooth, glabrous, at length radiate-rimose and showing white in the cracks; lamellae free, close, rather narrow, white, becoming roseous from the spores; spores regular, globose, smooth, uninucleate, 4 μ; cystidia none; stipe white, glabrous, much enlarged below, crooked, 4.5 cm. long, scarcely 1 cm. thick above, 2 cm. thick at the base.

TYPE LOCALITY: Port Antonio, Jamaica.
HABITAT: In a field near the shore on soil mixed with decayed wood.
DISTRIBUTION: Known only from the type locality.

57. Pluteus Earlei Murrill, Mycologia 3: 276. 1911.

Pileus rather thick, expanded, somewhat gibbous, 10 cm. broad; surface dry, densely floccose, uniformly pale-yellow, margin even, not striate; lamellae free, crowded, broad, becoming dull-pinkish; spores regular, ovoid, smooth, uninucleate, dark-pink when fresh, 7–8 × 6 μ; cystidia none; stipe slightly tapering upward, solid, white, glabrous, 8 cm. long, 1 cm. thick.

TYPE LOCALITY: Guanajay, Cuba.
HABITAT: On a dead log.
DISTRIBUTION: Known only from the type locality.

DOUBTFUL AND EXCLUDED SPECIES

Pluteus alveolatus (Cragin) Sacc. Syll. Fung. **5**: 679. 1887. (*Agaricus alveolatus* Cragin, Bull. Washburn Lab. **1**: 20. 1884.) See *Lentinula reticeps*, Mycologia **7**: 291. 1915. A number of good specimens are to be found at Albany.

Pluteus chrysophlebius (Berk. & Rav.) Sacc. Syll. Fung. **5**: 678. 1887. (*Agaricus chrysophlebius* Berk. & Rav.; Berk. & Curt. Ann. Mag. Nat. Hist. III. **4**: 289. 1859.) Described from specimens collected on dead logs in South Carolina. Specimens examined at Kew while working tropical material were found to be near *P. laetifrons*, but with longer stipe, etc. The description is almost identical with that of *Pluteus admirabilis* and the two species are probably not distinct.

Pluteus Curtisii (Berk.) Sacc. Syll. Fung. **5**: 675. 1887. (*Agaricus Curtisii* Berk. Jour. Bot. & Kew Misc. **1**: 98. 1849.) Described from specimens collected in South Carolina and reported from other southeastern states. When examined at Kew, I saw no difference between this species and *P. cervinus* and they are probably not distinct.

Pluteus nanus (Pers.) Quél. Champ. Jura Vosg. 82. 1872. (*Agaricus nanus* Pers. Syn. Fung. 357. 1801.) A number of different specimens are called *P. nanus* at Albany, but none of them appears to be the true *P. nanus* of Europe, according to authentic material from Bresadola and Romell.

Pluteus stercorarius Peck, Bull. Torrey Club **22**: 488. 1895. This species belongs in the genus *Locellina*.

Pluteus umbrosus (Pers.) Quél. Ench. Fung. 55. 1886. (*Agaricus umbrosus* Pers. Ic. Descr. Fung. 8. 1798.) This species, according to the best material available, appears to be only a dark form of *P. cervinus*. The American specimens certainly do not warrant specific distinction.

60. CHAMAEOTA (W. G. Smith) Earle, Bull. N. Y. Bot. Gard. 5: 446. 1909.

Agaricus § *Annularia* Schulzer, Verh. Zool.-Bot. Ges. Wien **16**: 49. 1866.
Agaricus § *Chamaeota* W. G. Smith. Clavis Agar. 15. 1870.
Annularia (Schulzer) Gill. Champ. Fr. 389. 1876. Not *Annularius* Roussel, 1806.

Pileus fleshy, putrescent, easily separating from the stipe, solitary or gregarious; lamellae free; spores pink or salmon-colored; stipe central, fleshy; veil persistent, forming an annulus.

Type species, *Agaricus xanthogrammus* Cesati.

Pileus white or yellow; species occurring in temperate North America.	1. *C. mammillata.*
Pileus dark-red; species occurring in tropical North America.	2. *C. Broadwayi.*

1. Chamaeota mammillata (Longyear) Murrill.

Annularia mammillata Longyear, Rep. Mich. Acad. Sci. **3**: 59. 1902.
Annularia sphaerospora Peck, Bull. Torrey Club **33**: 216. 1906.

Pileus fleshy but thin, conic or subcampanulate to expanded, distinctly umbonate, solitary or cespitose, 2–6 cm. broad; surface silky-fibrillose, yellow, fading to whitish either wholly or in part, the umbo yellow or brownish; lamellae free, crowded, ventricose, thin, whitish or cream-colored, becoming flesh-colored; spores globose or subglobose, smooth, salmon-colored, 5–6 μ; cystidia spindle-shaped, $50 \times 20\ \mu$; stipe equal or slightly tapering upward, fibrous, substriate, whitish, solid, 3–8 cm. long, 2–8 mm. thick; annulus white, medial or basal, persistent.

TYPE LOCALITY: Greenville, Michigan.
HABITAT: On dead logs in woods.
DISTRIBUTION: Michigan.
ILLUSTRATION: Rep. Mich. Acad. Sci. **3**: *pl. 1, f. 4.*

2. Chamaeota Broadwayi Murrill, sp. nov.

Pileus firm, convex to expanded, 3–6 cm. broad; surface densely floccose-tomentose, at length subareolate, dark-red, becoming reddish-brown on drying, margin even, not striate; lamellae free, crowded, rather narrow, reddish-brown in dried specimens; spores ellipsoid,

reddish, 10 × 8 μ; stipe cylindric, minutely tomentose, firm, 4–6 cm. long, 3–5 mm. thick; annulus ample, concolorous, subapical, soon deciduous.

Type collected on the ground at St. George's, Grenada, West Indies, 1905, *W. E. Broadway* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Vicinity of St. George's, Grenada, West Indies.

DOUBTFUL SPECIES

Annularia Fenzlii (Schulzer) Gill. Champ. Fr. 390. 1876. (*Agaricus Fenzlii* Schulzer, Verh. Zool.-Bot. Ges. Wien **16**: 49. 1866.) Reported from Kentucky and Michigan. A specimen so named at Albany collected in Detroit in August, 1904, by R. H. Stevens, is much larger than the type of *Annularia sphaerospora*, collected in the same locality, and does not show the annulus so plainly.

61. VOLVARIOPSIS Murrill, Mycologia 3: 280. 1911.

Volvarius Roussel, Fl. Calvados ed. 2. 59. 1806. Not *Volvaria* DC. 1805.
Agaricus § *Volvaria* Fries, Syst. Myc. 1: 277. 1821.
Volvaria Gill. Champ. Fr. 1: 385. 1878. Not *Volvaria* DC. 1805.
Pseudofarinaceus Batt. (Fung. Hist. 29, hyponym. 1755); Earle, Bull. N. Y. Bot. Gard. **5**: 449. 1909. Not *Pseudofarinaceus* O. Kuntze. 1891.

Pileus fleshy, putrescent, readily separating from the stipe, solitary or gregarious; lamellae free; spores pink or salmon-colored; stipe central, fleshy; veil absent; volva present.

Type species, *Agaricus volvaceus* Bull.

I. SPECIES OCCURRING IN TEMPERATE NORTH AMERICA

Species growing parasitically on other agarics.	1. *V. Loweiana.*
Species growing on decayed wood, manure, or soil.	
Pileus 1–4 cm. broad.	
Pileus uniformly white.	
Stipe 2.5 cm. long.	
Pileus and stipe glabrous or minutely silky.	2. *V. pusilla.*
Pileus and stipe pubescent or squamulose.	3. *V. pubescentipes.*
Stipe 5–7 cm. long.	
Pileus dry, squamulose; volva elongate.	4. *V. perplexa.*
Pileus moist, not squamulose; volva shallow, cup-shaped.	5. *V. umbonata.*
Pileus white, slightly yellowish on the disk; volva very large, light-brown.	6. *V. Earleae.*
Pileus gray, avellaneous, or murinous.	
Stipe 0.5–1.5 cm. long.	7. *V. concinna.*
Stipe 3–4 cm. long.	
Pileus 2 cm. broad; spores globose.	8. *V. villosovolva.*
Pileus 3–4 cm. broad; spores ellipsoid.	9. *V. submyochroa.*
Pileus 6–10 cm. broad.	
Species growing on decayed wood.	
Pileus glabrous, viscid.	10. *V. Peckii.*
Pileus densely fibrillose, not viscid.	11. *V. bombycina.*
Species growing on manure or soil.	
Pileus white; stipe 7 cm. long.	12. *V. emendatior.*
Pileus white or whitish, darker on the disk; stipe 10–20 cm. long.	13. *V. speciosa.*
Pileus fulvous-ochraceous, very viscid.	14. *V. viscosa.*
Pileus dark-brown or fuliginous.	
Pileus glutinous.	15. *V. gloiocephala.*
Pileus dry.	
Pileus glabrous; stipe 4–5 cm. long.	16. *V. alabamensis.*
Pileus appressed-fibrillose; stipe 8–14 cm. long.	17. *V. volvacea.*

II. SPECIES OCCURRING IN TROPICAL NORTH AMERICA

Pileus white or whitish, sometimes darker at the center.	
Species growing on the ground.	18. *V. Earlei.*
Species growing on decayed wood.	
Pileus 5 cm. broad; stipe 3–5 mm. thick.	19. *V. jamaicensis.*
Pileus 6–10 cm. broad; stipe 8–16 mm. thick	11. *V. bombycina.*
Pileus dark-brown or fuliginous.	
Stipe 7 mm. thick.	20. *V. cubensis.*
Stipe 10–15 mm. thick.	21. *V. Bakeri.*

1. Volvariopsis Loweiana (Berk.) Murrill.

Agaricus Loweiana Berk. in Smith, Engl. Fl. 5^2: 104. 1836.
Volvaria Loweiana Gill. Champ. Fr. 386. 1876.

Pileus fleshy, thin, ovoid or globose to campanulate and expanded, broadly umbonate, subcespitose, 2.5–5 cm. broad; surface dry, white, villose-silky, not striate, fimbriate on the

involute margin; context white or tinged with pink; lamellae free, subventricose, white to salmon-colored, whitish-floccose on the edges; spores ovoid or ellipsoid, smooth, rose-colored, 6–7 × 4–5 μ; cystidia flask-shaped, 45–70 × 8–15 μ; stipe fibrillose, white, solid, slightly bulbous, equal or attenuate upward, about 5 cm. long, 4–6 mm. thick; volva white, lobed, with short, free margin.

TYPE LOCALITY: England.
HABITAT: Parasitic on *Clitocybe*.
DISTRIBUTION: Canada and the northern United States; also in Europe.
ILLUSTRATIONS: Berk. Outl. Brit. Fungol. *pl. 7, f. 2;* Cooke, Brit. Fungi *pl. 295;* Gill. Champ. Fr. *pl. 252* (*712*); Mycologia 8: *pl. 177, f. A, B.*
EXSICCATI: Barth. Fungi Columb. *3509.*

2. Volvariopsis pusilla (Pers.) Murrill.

Amanita pusilla Pers. Obs. Myc. 2: 36. 1799.
Volvaria parvula Quél. Champ. Jura Vosg. 81. 1872.
Volvaria pusilla Schroet. Krypt-Fl. Schles. 3[1]: 621. 1889.
Volvaria striatula Peck, Bull. Torrey Club **22**: 487. 1895.

Pileus campanulate to plane, umbonate, 1.5 cm. broad; surface viscid, soon becoming dry, fibrillose, white, margin striate; lamellae free, rather crowded, narrow, white to flesh-colored; spores broadly ellipsoid, smooth, 5–7 × 4–5 μ; stipe equal, short, glabrous, white, 1.5–2.5 cm. long, 1–2 mm. thick; volva white, short, usually deeply cleft into four or more lobes.

TYPE LOCALITY: Europe.
HABITAT: In cultivated grounds, usually among weeds, rarely in woods.
DISTRIBUTION: United States east of the Rocky Mountains; also in Europe.
ILLUSTRATIONS: Boud. Ic. Myc. 1: *pl. 86;* Bull. Herb. Fr. *pl. 330;* Cooke, Brit. Fungi *pl. 300b;* Gill. Champ. Fr. *pl. 256* (*713*); Hard, Mushr. *f. 195;* C. G. Lloyd, Myc. Notes *f. 1;* Pat. Tab. Fung. 1: *f. 332;* Pers. Obs. Myc. 2: *pl. 4, f. 4.*
EXSICCATI: Rav. Fungi Car. 1: *3.*

3. Volvariopsis pubescentipes (Peck) Murrill.

Agaricus pubescentipes Peck, Ann. Rep. N. Y. State Mus. **29**: 39. 1878.
Volvaria pubipes Sacc. Syll. Fung. **5**: 658. 1887.

Pileus convex, about 1.2–2.5 cm. broad; surface dry, white, clothed with minute, hairy squamules or reflexed fibrils, margin fimbriate; lamellae crowded, free, white, becoming flesh-colored, sometimes minutely serrate or eroded on the edges; spores ellipsoid, usually uninucleate, 6–7 μ; stipe slender, subequal, pubescent, about 2.5 cm. long and 2 mm. thick; volva subappressed, white.

TYPE LOCALITY: Sandlake, New York.
HABITAT: On the ground in borders of deciduous woods.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **29**: *pl. 1, f. 1–3.*

4. Volvariopsis perplexa (Peck) Murrill.

Volvaria perplexa Peck, Bull. N. Y. State Mus. 167: 49. 1913.

Pileus thin, convex or nearly plane, umbonate, slightly depressed around the umbo, solitary, 1.2–2 cm. broad; surface dry, adorned with minute, erect, hairy squamules, white, margin even, fimbriate; lamellae crowded, free, about 2 mm. broad in the widest part, pale-pink; spores ellipsoid, 6–8 × 4–5 μ; stipe long, slender, glabrous, shining, solid or stuffed, slightly pruinose at the apex, thickened at the base, white, brownish where bruised, 5–7 cm. long, 2–3 mm. thick; volva closely sheathing, elongate.

TYPE LOCALITY: Minnesota.
HABITAT: Among fallen leaves in woods.
DISTRIBUTION: Known only from the type locality.

5. Volvariopsis umbonata (Peck) Murrill.

Volvaria umbonata Peck, Bull. Torrey Club **26**: 64. 1899.

Pileus thin, campanulate, becoming convex or nearly plane, prominently umbonate, 2–3 cm. broad; surface slightly viscid when moist, silky when dry, white, margin distinctly striate;

lamellae rather crowded, free, not extending beyond the margin of the pileus, pale-flesh-colored; spores broadly ellipsoid, uninucleate, variable in size, 5–7 × 4–5 μ; stipe equal or slightly thickened at the base, glabrous, solid, white, 5–6 cm. long, about 4 mm. thick; volva ruptured, membranous, white or grayish, persistent, irregularly split or lobed on the margin and forming a shallow cup at the base of the stipe.

TYPE LOCALITY: Ohio.
HABITAT: On lawns and grassy places.
DISTRIBUTION: Minnesota, Ohio, and Missouri.
ILLUSTRATION: Hard, Mushr. *f. 194.*

6. Volvariopsis Earleae Murrill, sp. nov.

Pileus campanulate, not expanding, solitary, 2.5 cm. broad; surface white, slightly yellowish on the disk, finely fibrillose, dry, not striate, margin entire, concolorous, densely clothed with fine white hairs; lamellae free, crowded, rather narrow, white to salmon-colored; spores ellipsoid, smooth, rose-colored, 7–8 × 3.5–4 μ; stipe cylindric, equal, smooth, white, solid, 2.5 cm. long, 5 mm. thick; volva very large, thin, membranous, persistent, light-brown, 3 cm. high, 1.5 cm. broad.

Type collected on a dead spot on a living oak trunk at Biloxi, Mississippi, September 2, 1904, *Esther S. Earle 60* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

7. Volvariopsis concinna (Clements) Murrill.

Volvaria concinna Clements, Bot. Surv. Neb. 5: 9. 1901.

Pileus submembranous, expanded, not at all or only slightly umbonate, 0.5–1.5 cm. broad; surface smooth, pale-avellaneous; lamellae free, rose-colored; spores ovoid-ellipsoid, granular or guttate, smooth, rosy, 8–11 × 5–7 μ; stipe graceful, concolorous, 0.5–1.5 cm. long, 1–2 mm. thick; volva minute, strictly appressed, limb obsolescent.

TYPE LOCALITY: Nemaha River, Humboldt, Nebraska.
HABITAT: On moist, shaded ground and on flooded banks.
DISTRIBUTION: Nebraska and Kansas.

8. Volvariopsis villosovolva (C. G. Lloyd) Murrill.

Volvaria villosovolva C. G. Lloyd, Myc. Notes 31. 1899.

Pileus convex, gregarious, 2 cm. broad; surface dry, silky-fibrillose, somewhat rimose, even, gray; lamellae free, remote; spores globose, 5 μ; stipe pure-white, solid, slightly tapering upward, 4 cm. long, 4 mm. thick; volva globose, densely covered with long, white, mycelioid hairs, which disappear in the dried specimens.

TYPE LOCALITY: Ohio.
HABITAT: Fallen logs and rich earth in damp ravines in woods.
DISTRIBUTION: Ohio and Virginia.
ILLUSTRATION: C. G. Lloyd, Myc. Notes *f. 2.*

9. Volvariopsis submyochroa (Clements) Murrill.

Volvaria submyochroa Clements, Bot. Surv. Neb. 5: 10. 1901.

Pileus convex, almost plane, scarcely umbonate, subcarnose, 3–4 cm. broad; surface silky, shining, the umbo densely covered with larger silky fibrils, becoming innate toward the strongly striate margin, pale-avellaneous-murinous; lamellae free, remote, subcrowded, ventricose, at first flesh-colored, becoming isabelline; spores ellipsoid, smooth, uninucleate, 6–7 × 4 μ; stipe carnose, equal, solid, white, shining, farinose at the apex, 3–4 cm. long, 5 mm. thick; volva small, hirsute, 2–3-fid, concolorous.

TYPE LOCALITY: University campus, Lincoln, Nebraska.
HABITAT: On wet earth in a basement.
DISTRIBUTION: Known only from the type locality.

10. Volvariopsis Peckii (Atk.) Murrill.

Volvaria Peckii Atk.; Peck, Ann. Rep. N. Y. State Mus. 48: 109 (11). 1897.

Pileus thin, convex, about 7.5 cm. broad; surface glabrous, viscid, whitish, margin finely striate; lamellae rather crowded, thin, pale-flesh-colored; spores subellipsoid, even, usually

uninucleate, 7.5–10 × 5–6 μ; stipe glabrous, solid, whitish, slightly tapering upward, 7.5–8.5 cm. long, 6–8 mm. thick; volva loose, membranous, well-developed.

TYPE LOCALITY: Ithaca, New York.
HABITAT: On decaying wood.
DISTRIBUTION: Known only from the type locality.

11. Volvariopsis bombycina (Schaeff.) Murrill, Mycologia 3: 281. 1911.

Agaricus bombycinus Schaeff. Fung. Bavar. 4: Ind. 42. 1774.
Volvaria bombycina Quél. Champ. Jura Vosg. 80. 1872.

Pileus fleshy, campanulate or very convex, solitary, 6–10 cm. broad; surface densely silky-fibrillose, white or whitish; context white, firm but tender, the taste mild; lamellae broad, crowded, free, whitish, becoming bright-pink; spores flesh-colored or pink, ellipsoid, 8–10 × 5–6 μ; stipe straight or curved, solid, silky-fibrillose, white, 5–10 cm. long, 8–16 mm. thick; volva large, persistent, white or whitish, appearing like a cup or loose wrapper at the base of the stipe.

TYPE LOCALITY: Bavaria.
HABITAT: Growing from dead places in living maple, beech, and other deciduous trees, and also on fallen trunks.
DISTRIBUTION: New England to Cuba and west to Nebraska; also in Europe.
ILLUSTRATIONS: Atk. Stud. Am. Fungi ed. 1. *f. 134;* ed. 2. *f. 137;* Bull. N. Y. State Mus. 157: *pl. 125;* Cooke, Brit. Fungi. *pl. 293;* Gill. Champ. Fr. *pl. 253 (710);* Hard. Mushr. *f. 191–193;* McIlv. Am. Fungi *pl. 59;* Pat. Tab. Fung. 1: *f. 330;* Schaeff. Fung. Bavar. *pl. 98.*

12. Volvariopsis emendatior (Berk. & Curt.) Murrill.

Agaricus emendatior Berk. & Curt. Ann. Mag. Nat. Hist. III. 4: 289. 1859.
Volvaria emendatior Sacc. Syll. Fung. 14: 125. 1899.

Pileus plane, umbonate, 7–8 cm. broad; surface smooth, glabrous, white, margin thin, striate; context having a disagreeable odor; lamellae free, remote, ventricose, rounded behind, extending beyond the margin, white to salmon-colored; spores cymbiform, 12–13 μ long; stipe enlarged above and below, slightly fibrillose, solid, 7 cm. long, 8 mm. thick; volva marginate, forming only a short rim.

TYPE LOCALITY: New England.
HABITAT: In rich garden soil.
DISTRIBUTION: New England and South Carolina.

13. Volvariopsis speciosa (Fries) Murrill.

Amanita speciosa Fries, Obs. Myc. 2: 1. 1818.
Volvaria speciosa Gill. Champ. Fr. 388. 1876.

Pileus campanulate to expanded, umbonate or obtuse, 6–10 cm. broad; surface glabrous, viscid, white or whitish, darker on the disk; lamellae free, salmon-colored; spores ellipsoid, smooth, rose-colored, 12–18 × 8–10 μ; cystidia sack-shaped, 40–80 μ long, reaching 24 μ broad; stipe attenuate, subbulbous, lax, villose, white, solid, 10–20 cm. long, 1–2 cm. thick; volva large, closely adhering, the edge free and irregularly torn.

TYPE LOCALITY: Europe.
HABITAT: On manure or cultivated ground.
DISTRIBUTION: Throughout temperate North America; also in Europe.
ILLUSTRATIONS: Boud. Ic. Myc. 1: *pl. 84;* Cooke, Brit. Fungi *pl. 297;* Gill. Champ. Fr. *pl. 255 (714);* Pat. Tab. Fung. 2: *f. 640;* Ricken, Blatterp. Deutschl. *pl. 70, f. 3.*

14. Volvariopsis viscosa (Clements) Murrill.

Volvaria viscosa Clements, Bot. Surv. Neb. 2: 37. 1893.

Pileus fleshy, campanulate-convex, 6 cm. broad; surface smooth, very viscous, fulvous-ochraceous; lamellae touching, brown; spores ovoid-ellipsoid, dilutely flesh-colored, with a large locule, 8 × 5 μ; stipe prominently bulbous, nearly equal above, solid, smooth, ochraceous, 6 cm. long, 1.5 cm. thick at the base, 0.5 cm. thick at the apex; volva ample, lobed, concolorous.

TYPE LOCALITY: Warbonnet Cañon, Nebraska.
HABITAT: On horse dung.
DISTRIBUTION: Known only from the type locality.

15. Volvariopsis gloiocephala (DC.) Murrill.

Agaricus gloiocephalus DC. Fl. Fr. 6: 52. 1815.
Volvaria gloiocephala Gill. Champ. Fr. 387. 1876.

Pileus campanulate to expanded, umbonate, fleshy, 8 cm. broad; surface glabrous, glutinous, fuliginous, margin striate; context very poisonous according to Lettellier; lamellae free, reddish; spores 19 × 9 μ; stipe glabrous, fuscous or fulvous, solid, 16 cm. or more long, 1–2.5 cm. thick; volva circumscissile, coarctate.

TYPE LOCALITY: France.
HABITAT: On manure or manured ground.
DISTRIBUTION: North Carolina, California, and certain other parts of temperate North America; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 298;* Saunders, Smith, & Bennett, Myc. Illust. *pl. 33, f. 2.*

16. Volvariopsis alabamensis Murrill, sp. nov.

Pileus thick, firm, convex, not umbonate, solitary, 6–7 cm. broad; surface smooth, dry, glabrous with a silky sheen, uniformly dark-brown, margin entire, concolorous, not striate; lamellae free, broad, ventricose, crowded, white to salmon-colored, somewhat undulate on the edges; spores irregularly ovoid, rose-colored, 16–18 × 7–9 μ; stipe short, enlarged below, smooth, glabrous, white, solid, 4–5 cm. long, 5–10 mm. thick; volva white, somewhat fibrillose, ample, closely adhering below, with free, lacerate margin, a portion being carried up on the top of the pileus.

Type collected in soil in the Experiment Station garden, Auburn, Alabama, March 10, 1898, *F. S. Earle* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

17. Volvariopsis volvacea (Bull.) Murrill.

Agaricus volvaceus Bull. Herb. Fr. *pl. 262.* 1785.
Agaricus virgatus Pers. Tent. Disp. Fung. 18. 1797.
Amanita virgata Pers. Tent. Disp. Fung. 66. 1797.
Volvaria virgata Quél. Champ. Jura Vosg. 332. 1873.
Volvaria volvacea Quél. Ench. Fung. 54. 1886.

Pileus fleshy, soft, campanulate to expanded, obtuse, 6–8 cm. broad; surface dry, fuliginous, covered with appressed fibrils, black when dry; lamellae free, flesh-colored; spores ellipsoid, smooth, rose-colored, 6–8 × 3.5–4 μ; stipe subequal, smooth, glabrous, whitish, solid, 8–14 cm. long, 1–2 cm. thick; volva thick, membranous, persistent, the margin irregular.

TYPE LOCALITY: France.
HABITAT: On the ground. usually in hothouses or cellars.
DISTRIBUTION: Eastern United States; also in Europe.
ILLUSTRATIONS: Bull. Herb. Fr. *pl. 262;* Cooke, Brit. Fungi *pl. 294;* C. G. Lloyd, Volvae *f. 9;* Pat. Tab. Fung. *f. 331;* Sow. Engl. Fungi *pl. 1.*

18. Volvariopsis Earlei Murrill, Mycologia 3: 282. 1911.

Volvaria Earlei Murrill, Mycologia 4: 332. 1912.

Pileus fleshy, rather thin, becoming expanded, solitary or gregarious, 4–5 cm. broad; surface glabrous, rarely with thin volval patches, white, discolored with age, margin even or slightly striate; lamellae free, subcrowded, of medium breadth, ventricose, white to pink; spores ellipsoid, smooth, both nucleate and granular, about 11 × 7 μ; stipe subcylindric, slightly tapering upward, glabrous, pure-white, solid, 5–10 cm. long, 5–8 mm. thick; volva delicate, sheathing, very short, 5–8 mm. in length.

TYPE LOCALITY: Santiago de las Vegas, Cuba.
HABITAT: On the ground in a banana field.
DISTRIBUTION: Santiago de las Vegas, Cuba.

19. Volvariopsis jamaicensis Murrill, Mycologia 3: 281. 1911.

Volvaria jamaicensis Murrill, Mycologia 4: 332. 1912.

Pileus thin, convex to nearly plane, gregarious, 5 cm. broad; surface ashy-white, avellaneous at the center, radiate-striate, slightly granular, margin thin, entire; lamellae free, close, narrow, white to salmon-colored; spores narrowly ellipsoid, smooth, uninucleate, about

COMPLETED VOLUME

9: i–iv, 1–542. (Agaricales:) Polyporaceae (pars), Boletaceae, Agaricaceae (pars). Complete in 7 parts.

PARTS OF VOLUMES PREVIOUSLY PUBLISHED

3^{1}: 1–88. Hypocreales: Nectriaceae, Hypocreaceae. Fimetariales: Chaetomiaceae, Fimetariaceae.

7^{1}: 1–82. Ustilaginales: Ustilaginaceae, Tilletiaceae.

7^{2}: 83–160. Uredinales: Coleosporiaceae, Uredinaceae, Aecidiaceae (pars).

7^{3}: 161–268. (Uredinales:) Aecidiaceae (pars).

10^{1}: 1–76. (Agaricales:) Agaricaceae (pars).

15^{1}: 1–75. Sphagnales: Sphagnaceae. Andreaeales: Andreaeaceae. Bryales: Archidiaceae, Bruchiaceae, Ditrichaceae, Bryoxyphiaceae, Seligeriaceae.

15^{2}: 77–166. (Bryales:) Dicranaceae, Leucobryaceae.

16^{1}: 1–88. Ophioglossales: Ophioglossaceae. Marattiales: Marattiaceae. Filicales: Osmundaceae, Ceratopteridaceae, Schizaeaceae, Gleicheniaceae, Cyatheaceae (pars).

17^{1}: 1–98. Pandanales: Typhaceae, Sparganiaceae. Naiadales: Zannichelliaceae, Zosteraceae, Cymodoceaceae, Naiadaceae, Lilaeaceae. Alismales: Scheuchzeriaceae, Alismaceae, Butomaceae. Hydrocharitales: Elodeaceae, Hydrocharitaceae. Poales: Poaceae (pars).

17^{2}: 99–196. (Poales:) Poaceae (pars).

17^{3}: 197–288. (Poales:) Poaceae (pars).

21^{1}: 1–93. Chenopodiales: Chenopodiaceae.

22^{1}: 1–80. Rosales: Podostemonaceae, Crassulaceae, Penthoraceae, Parnassiaceae.

22^{2}: 81–192. (Rosales:) Saxifragaceae, Hydrangeaceae, Cunoniaceae, Iteaceae, Pterostemonaceae, Hamamelidaceae, Altingiaceae, Phyllonomaceae.

22^{3}: 193–292. (Rosales:) Grossulariaceae, Platanaceae, Crossosomataceae, Connaraceae, Calycanthaceae, Rosaceae (pars).

22^{4}: 293–388. (Rosales:) Rosaceae (pars).

22^{5}: 389–480. (Rosales:) Rosaceae (pars).

25^{1}: 1–88. Geraniales: Geraniaceae, Oxalidaceae, Erythroxylaceae, Linaceae.

25^{2}: 89–171. (Geraniales:) Tropaeolaceae, Balsaminaceae, Limnanthaceae, Koeberliniaceae, Zygophyllaceae, Malpighiaceae.

25^{3}: 173–261. (Geraniales:) Rutaceae, Surianaceae, Simaroubaceae, Burseraceae.

29^{1}: 1–102. Ericales: Clethraceae, Monotropaceae, Lennoaceae, Pyrolaceae, Ericaceae.

34^{1}: 1–80. (Carduales:) Carduaceae (pars).

34^{2}: 81–180. (Carduales:) Carduaceae (pars).

34^{3}: 181–288. (Carduales:) Carduaceae (pars).

一九五五年参月卅日

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VOLUME 10 PART 3

NORTH AMERICAN FLORA

(AGARICALES)

AGARICACEAE (pars)

AGARICEAE (pars)

WILLIAM ALPHONSO MURRILL

PUBLISHED BY

THE NEW YORK BOTANICAL GARDEN

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ANNOUNCEMENT

North American Flora is designed to present in one work descriptions of all plants growing, independent of cultivation, in North America, here taken to include Greenland, Central America, the Republic of Panama, and the West Indies, except Trinidad, Tobago, and Curaçao and other islands off the north coast of Venezuela, whose flora is essentially South American.

The work will be published in parts at irregular intervals, by the New York Botanical Garden, through the aid of the income of the David Lydig Fund bequeathed by Charles P. Daly.

It is planned to issue parts as rapidly as they can be prepared, the extent of the work making it possible to commence publication at any number of points. The completed work will form a series of volumes with the following sequence:

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Volumes 2 to 10. Fungi.

Volumes 11 to 13. Algae.

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Volume 16. Pteridophyta and Gymnospermae.

Volumes 17 to 19. Monocotyledones.

Volumes 20 to 34. Dicotyledones.

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Professor George F. Atkinson, of Cornell University; Professor John M. Coulter, of the University of Chicago; Mr. Frederick V. Coville, of the United States Department of Agriculture; Professor Byron D. Halsted, of Rutgers College; and Professor William Trelease, of the University of Illinois, have consented to act as an advisory committee.

Each author will be wholly responsible for his own contributions, being restricted only by the general style adopted for the work, which must vary somewhat in the treatment of diverse groups.

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$5 \times 3\ \mu$; stipe curved, slightly tapering upward, glabrous, whitish, hollow, with a tough rind, 5 cm. long, 3–5 mm. thick; volva rather delicate, narrow, avellaneous, 1–2 cm. long.

TYPE LOCALITY: Moore Town, Jamaica.
HABITAT: On the decaying roots of an upturned tree in a virgin forest.
DISTRIBUTION: Known only from the type locality.

20. Volvariopsis cubensis Murrill, Mycologia 3: 281. 1911.

Volvaria cubensis Murrill, Mycologia 4: 332. 1912.

Pileus firm, fleshy, rather tough, irregularly expanded, obtuse, solitary, 7 cm. broad; surface dark-smoky-brown, minutely fibrillose, not striate, the disk seal-brown and glabrous; context with strong, unpleasant odor; lamellae free, distant, subcrowded, rather broad, subventricose, heterophyllous; spores ellipsoid, smooth, uninucleate, about $5.5 \times 3.5\ \mu$; stipe subcylindric, slightly enlarged above and below, concolorous but paler, glabrous, solid, tough, the apex pallid, 6–7 cm. long, 7 mm. thick; volva thick and fleshy, cup-shaped, distant, bifid, concolorous.

TYPE LOCALITY: Santiago de las Vegas, Cuba.
HABITAT: On the ground in a banana field.
DISTRIBUTION: Santiago de las Vegas, Cuba.

21. Volvariopsis Bakeri Murrill, Mycologia 3: 281. 1911.

Volvaria Bakeri Murrill, Mycologia 4: 332. 1912.

Pileus fleshy, ovoid to convex, densely gregarious, reaching a breadth of 10 cm.; surface dark-fuliginous, becoming much lighter with age, appressed-fibrillose from the cracking of the cuticle, not striate; context white, with mild taste and no appreciable odor; lamellae free, crowded, not very broad, white, becoming pink; spores broadly ellipsoid, rarely ovoid, smooth, roseous, $6–8 \times 4–5\ \mu$; stipe tapering upward, white, glabrous, solid, 8–9 cm. long, 1–1.5 cm. thick; volva free, open, dark-fuliginous, 3–4 cm. long, 2–3 cm. broad.

TYPE LOCALITY: Santiago de las Vegas, Cuba.
HABITAT: On a dead banana stump.
DISTRIBUTION: Known only from the type locality.

Subtribe 3. PHOLIOTANAE*

Lamellae readily separable from the context.
  Stipe lateral or none. — 62. TAPINIA.
  Stipe central or eccentric. — 63. PAXILLUS.
Lamellae not readily separable from the context.
  Volva and annulus absent; a slight, non-arachnoid, evanescent veil present at times in young stages.
    Pileus irregular, dimidiate or resupinate. — 64. CREPIDOTUS.
    Pileus circular and centrally stipitate.
      Stipe cartilaginous.
        Lamellae not dissolving at maturity.
          Lamellae decurrent. — 65. TUBARIA.
          Lamellae adnate or adnexed.
            Margin of pileus straight and appressed when young. — 66. GALERULA.
            Margin of pileus incurved when young. — 67. NAUCORIA.
          Lamellae free, rarely adnexed. — 68. PLUTEOLUS.
        Lamellae dissolving at maturity, free or attached. — 69. MYCENA.
      Stipe fleshy, somewhat woody in certain species of *Gymnopilus*.
        Lamellae long-decurrent, anastomosing behind; terrestrial species. — 70. PHYLLOPORUS.
        Lamellae usually adnate or short-decurrent, not anastomosing; mostly wood-loving species, with spores ferruginous in mass. — 71. GYMNOPILUS.
        Lamellae sinuate or adnexed, not anastomosing; terrestrial species with spores usually isabelline.
          Pileus glabrous and viscid. — 72. HEBELOMA.
          Pileus silky or squamulose, slightly viscid in two or three species. — 73. INOCYBE.
  Volva or annulus present. [See next part for the remainder of this key, containing *Pholiota*, *Cortinarius*, and *Locellina*.]

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* See N. Am. Flora 9: 237, for a key to the four subtribes of the Agariceae. The Pholiotanae are distinguished by their spores, which are ochraceous, ferruginous, or fulvous.

62. TAPINIA (Fries) P. Karst. Bidr. Finl. Nat. Folk 32: 452. 1879.

Paxillus § *Tapinia* Fries, Epicr. Myc. 317. 1838.
? *Plicaturella* Murrill, N. Am. Flora 9: 172. 1910.

Pileus fleshy, firm, putrescent, dimidiate or resupinate; lamellae radiating from a lateral point, often anastomosing, readily separable from the context; spores ochraceous, ferruginous, or fulvous; stipe none; veil none.

Type species, *Paxillus panuoides* (Fries) Quél.

Lamellae yellow, sinuous. 1. *T. lamellosa.*
Lamellae orange-yellow, corrugate. 2. *T. corrugata.*

1. Tapinia lamellosa (Sow.) Murrill.

? *Agaricus acheruntius* Humb. Fl. Friberg. 73. 1793.
Merulius lamellosus Sow. Engl. Fungi *pl. 403.* 1809.
Agaricus panuoides Fries, Obs. Myc. 2: 227. 1818.
? *Chanterel olivaceus* Schw. Trans. Am. Phil. Soc. II. 4: 296. 1832.
Paxillus panuoides Fries, Epicr. Myc. 318. 1838.
Rhymovis panuoides Rab. Deutschl. Krypt.-Fl. 1: 453. 1844.
Paxillus rudis Berk. & Curt. Ann. Mag. Nat. Hist. III. 4: 296. 1859.
Paxillus ligneus Berk. & Curt. Jour. Linn. Soc. 9: 423. 1867.
Tapinia panuoides P. Karst. Bidr. Finl. Nat. Folk 32: 452. 1879.

Pileus fleshy, thin, sessile or resupinate, sometimes narrowed behind into a short, stipe-like base, dimidiate to flabelliform, imbricate, convex or nearly plane, 2.5–10 cm. broad; surface pubescent or subglabrous, yellowish or brownish-yellow; lamellae anastomosing and crisped behind, crowded, narrow, yellow; spores short-ellipsoid, ochraceous-brown, $4–6 \times 3–4\ \mu$.

TYPE LOCALITY: England.
HABITAT: On dead wood, usually of pine.
DISTRIBUTION: Canada to Alabama and west to Washington and California; mountains of Mexico; also in Europe.
ILLUSTRATIONS: Atk. Stud. Am. Fungi ed. 2. *f. 163;* Berk. Outl. Brit. Fungol. *pl. 12, f. 6;* Sow. Engl. Fungi *pl. 403.*
EXSICCATI: Roum. Fungi Gall. *3817;* Sydow, Myc. Mar. *2607.*

2. Tapinia corrugata (Atk.) Murrill.

Paxillus corrugatus Atk. Stud. Am. Fungi 170. 1900.

Pileus sessile, dimidiate, convex to expanded, irregularly cuneate behind, imbricate, 2–5 cm. broad; surface glabrous or very slightly tomentose, smooth, maize-yellow to orange-yellow, tinged with reddish-brown behind, margin entire, subconcolorous, involute; context pale-yellow, spongy, becoming rigid on drying, the odor characteristic and disagreeable, persisting in the dried plant for several months; lamellae of medium distance, 2–3 mm. broad, thin, several times regularly furcate, orange-yellow, conspicuously corrugate, readily separating from the context when fresh, the edges obtuse, very undulate and crenulate; spores broadly ellipsoid or nearly ovoid, smooth, faintly yellow under the microscope, olive-yellow in mass, $3 \times 1.5–2\ \mu$.

TYPE LOCALITY: Ithaca, New York.
HABITAT: On decaying wood of hemlock.
DISTRIBUTION: New York.
ILLUSTRATIONS: Atk. Stud. Am. Fungi ed. 1. *f. 158;* ed. 2. *f. 162.*

DOUBTFUL SPECIES

Paxillus Curtisii Berk.; Berk. & Curt. Ann. Mag. Nat. Hist. II. 12 : 423. 1853. Described from specimens collected on pine logs in northern Georgia. This species, which was overlooked by Saccardo, is apparently not distinct from *T. corrugata,* judging from the description.

Paxillus reniformis Berk. & Rav.; Berk. & Curt. Ann. Mag. Nat. Hist. II. 12 : 424. 1853. Described from specimens collected on oak rails at Sulphur Springs, North Carolina. The brief description would suggest *T. lamellosa,* although this species usually occurs on pine rather than oak. The lamellae are said to be at first whitish and at length brownish-ferruginous on account of the spores.

63. PAXILLUS Fries, Gen. Hymen. 8. 1836.

Rhymovis Rab. Deutschl. Krypt.-Fl. 1: 453. 1844.

Pileus fleshy, putrescent, solitary or gregarious, often somewhat irregular; lamellae readily separable from the context, adnate or decurrent; spores sordid or ochraceous; stipe central or somewhat eccentric, fleshy; veil none.

Type species, *Paxillus involutus* (Batsch) Fries.

Stipe subglabrous. 1. *P. involutus.*
Stipe tomentose-hairy. 2. *P. atrotomentosus.*

1. Paxillus involutus (Batsch) Fries, Gen. Hymen. 8. 1836.

? *Agaricus lateralis* Schaeff. Fung. Bavar. 4: Ind. 31. 1774.
Agaricus involutus Batsch, Elench. Fung. Contin. 1: 39. 1786.

Pileus convex to expanded or depressed, 4–8 cm. broad; surface variable in color, grayish, yellowish-brown, or reddish-brown, margin downy and inrolled when young; context yellowish, becoming brownish when bruised; lamellae decurrent, reticulate on the stipe, pallid to greenish-yellow, changing to brown when bruised; spores ovoid, 7–9 × 4–5 μ; stipe central or eccentric, short, equal, concolorous, 3–5 cm. long, 1–2 cm. thick.

TYPE LOCALITY: Germany.
HABITAT: On open ground or on dead logs and stumps in woods.
DISTRIBUTION: Canada to South Carolina and west to Oregon and California; also in Europe.
ILLUSTRATIONS: Atk. Stud. Am. Fungi ed. 1. *f. 155;* ed. 2. *f. 159;* Batsch, Elench. Fung. *f. 61;* Fries, Sv. Aetl. Svamp. *pl. 75;* Gill. Champ. Fr. *pl. 362* (*514*)*;* Hard, Mushr. *f. 232;* Murrill, Ed. Pois. Mushr. *f. 7;* Ricken, Blätterp. Deutschl. *pl. 28, f. 4;* Sow. Engl. Fungi *pl. 56.*
EXSICCATI: Herpell, Präp. Hutpilze *90;* Sydow, Myc. Mar. *1506.*

2. Paxillus atrotomentosus (Batsch) Fries, Epicr. Myc. 317. 1838.

Agaricus atrotomentosus Batsch, Elench. Fung. 89. 1783.

Pileus compact, convex, becoming expanded or centrally depressed, solitary or cespitose, 7.5–15 cm. broad; surface varying from subglabrous to scabrous-granulose, sometimes tomentose-hairy on the disk, often minutely rivulose, ochraceous-red, ferruginous-brown, or reddish-brown, margin sometimes paler; context white, occasionally emitting an unpleasant, dirt-like odor; lamellae crowded, rather broad, adnate or slightly decurrent, somewhat branched and anastomosing at the base, pale-creamy-yellow, the interspaces venose; spores ellipsoid, 5–6 × 3–4 μ; stipe firm, stout, solid, eccentric or lateral, rarely central, densely tomentose-hairy, dark-brown, 7.5–15 cm. long, 1.2–3 cm. thick.

TYPE LOCALITY: Europe.
HABITAT: On the ground and on much decayed wood of pine and hemlock.
DISTRIBUTION: Canada to North Carolina and west to Oregon; also in Europe.
ILLUSTRATIONS: Atk. Stud. Am. Fungi ed. 1. *f. 157;* ed. 2. *f. 161;* Batsch, Elench. Fung. *f. 32;* Gill. Champ. Fr. *pl. 360* (*512*)*;* Hard, Mushr. *f. 233;* Lucand, Champ. Fr. *pl. 18;* Ricken, Blätterp. Deutschl. *pl. 28, f. 4.*
EXSICCATI: Roum. Fungi Gall. *3402.*

DOUBTFUL AND EXCLUDED SPECIES

Paxillus aurantiacus Ellis, Bull. Torrey Club 9: 18. 1882. Described from specimens collected on moss-covered cedar logs in a swamp. No specimens were found by Earle in the Ellis collection. The spores are described as hyaline.

Paxillus griseotomentosus (Secr.) Fries, Epicr. Myc. 318. 1838. (*Agaricus griseotomentosus* Secr. Myc. Suisse 2: 384. 1833.) Reported from Canada and New England, but probably confused in this country with *P. atrotomentosus.*

Paxillus hirsutus Peck, Bot. Gaz. 4: 169. 1879. Described from specimens collected on stumps at Belleville, Ontario, and also reported from New Jersey. The type specimens are poor, but apparently represent a young stage of *Paxillus atrotomentosus.*

Paxillus porosus Berk.; Lea, Cat. Pl. Cinc. 54. 1849. See *Boletinellus porosus* (Schw.) Murrill, N. Am. Flora 9: 158.

Paxillus pubescens Ellis, Bull. Torrey Club 6: 76. 1876. See *Gomphidius viscidus* (L.) Fries.

Paxillus simulans Peck, Bull. N. Y. State Mus. 1^2: 30. 1887. Described from specimens collected in thin woods at Sandlake, New York. There are two hymenophores on the type sheet at Albany and they are apparently a whitish species of *Lactaria* or *Russula*. Peck remarks that no latex was observed.

64. CREPIDOTUS (Fries) Quél. Champ. Jura Vosg. 106. 1872.

Agaricus § *Crepidotus* Fries, Syst. Myc. 1: 272. 1821.
Phialocybe P. Karst. Bidr. Finl. Nat. Folk **32**: 415. 1879.
Derminus Schroet. Krypt-Fl. Schles. 3^1: 578. 1889.

Pileus soft, fleshy, putrescent, irregular, often dimidiate or resupinate; lamellae usually radiating from a lateral point; spores ochraceous, ferruginous, or fulvous; stipe lateral or wanting, rarely eccentric; veil none.

Type species, *Crepidotus mollis* (Schaeff.) Quél.

I. Species occurring in temperate North America, except those confined to the Pacific coast

- Pileus white, whitish, or grayish-white.
  - Pileus 3–10 mm. broad.
    - Spores globose, 5–6 μ. — 1. *C. latifolius.*
    - Spores ellipsoid.
      - Surface glabrous. — 2. *C. albidus.*
      - Surface downy-villose. — 3. *C. herbarum.*
  - Pileus 1–2 cm. broad, sometimes smaller in *C. versutus.*
    - Pileus striate on the margin.
      - Spores globose.
        - Lamellae very narrow, crowded. — 4. *C. applanatus.*
        - Lamellae broad, not crowded. — 5. *C. hygrophanus.*
      - Spores ellipsoid. — 6. *C. haerens.*
    - Pileus not striate on the margin; spores ellipsoid.
      - Pileus glabrous or becoming glabrous.
        - Lamellae whitish on the edges. — 7. *C. fraxinicola.*
        - Lamellae concolorous on the edges. — 8. *C. alabamensis.*
      - Pileus villose.
        - Pileus at first resupinate; spores 8.5–10 × 6–7.5 μ. — 9. *C. versutus.*
        - Pileus not at first resupinate; spores 7–8 × 4–6 μ. — 10. *C. Betulae.*
  - Pileus 2–8 cm. broad.
    - Surface tomentose. — 11. *C. putrigenus.*
    - Surface glabrous.
      - Spores globose. — 12. *C. malachius.*
      - Spores ellipsoid. — 13. *C. mollis.*
- Pileus yellowish, ochraceous, fulvous, or grayish-fulvous.
  - Pileus 4–8 mm. broad.
    - Pileus ochraceous, tomentose, 4 mm. broad. — 14. *C. pecten.*
    - Pileus fulvous or grayish-fulvous, usually larger.
      - Surface sulcate-striate, minutely pubescent. — 15. *C. distans.*
      - Surface not striate, minutely squamulose. — 16. *C. sepiarius.*
  - Pileus 1–5 cm. broad.
    - Surface glabrous, yellowish. — 17. *C. croceitinctus.*
    - Surface tomentose, yellowish. — 18. *C. nephrodes.*
    - Surface squamulose.
      - Lamellae orange-colored when young. — 19. *C. crocophyllus.*
      - Lamellae white or whitish when young.
        - Spores globose, 4–5 μ. — 20. *C. fulvifibrillosus.*
        - Spores ellipsoid, 8–9 × 5–6 μ. — 21. *C. calolepis.*
- Pileus watery-brown and striate when moist, dingy-buff when dry; stipitate. — 22. *C. tiliophilus.*
- Pileus ferruginous-orange, squamulose. — 23. *C. flammeus.*
- Pileus reddish-yellow. — 24. *C. rubriflavus.*
- Pileus red.
  - Pileus 2–4 mm. broad, glabrous. — 25. *C. rufolatericius.*
  - Pileus 6–15 mm. broad, pulverulent. — 26. *C. cinnabarinus.*

II. Species occurring on the Pacific coast

- Pileus 4–10 mm. broad.
  - Pileus white. — 3. *C. herbarum.*
  - Pileus brown. — 27. *C. puberulus.*
- Pileus 2–8 cm. broad.
  - Pileus white or whitish, glabrous or nearly so.
    - Spores globose. — 12. *C. malachius.*
    - Spores ellipsoid.
      - Surface radially sulcate or plicate. — 28. *C. submollis.*
      - Surface not as above. — 13. *C. mollis.*
  - Pileus fulvous, squamulose. — 21. *C. calolepis.*

III. SPECIES CONFINED TO TROPICAL NORTH AMERICA

Pileus 2–10 mm. broad.
  Pileus floccose-pulverulent, pure-white. 29. *C. parvulus.*
  Pileus glabrous.
    Pileus 2–5 mm. broad.
      Surface russet-white or isabelline.
        Stipe inconspicuous, fugacious. 30. *C. Citri.*
        Stipe conspicuous, persistent. 31. *C. eccentricus.*
      Surface chrome-yellow. 32. *C. Dussii.*
    Pileus 5–10 mm. broad.
      Pileus pale-ochraceous. 33. *C. Psychotriae.*
      Pileus testaceous to latericious. 34. *C. bicolor.*
Pileus 1–3 cm. broad, sometimes smaller in *C. cuneiformis* and *C. subcuneiformis.*
  Pileus white or whitish.
    Pileus striate on the margin.
      Margin very thin, pellucid, becoming dark on drying. 35. *C. cinchonensis.*
      Margin not as above. 36. *C. sulcatus.*
    Pileus not striate on the margin.
      Pileus about 1 cm. broad. 37. *C. musaecola.*
      Pileus 2–3 cm. broad. 38. *C. fumosifolius.*
  Pileus yellowish, isabelline, ochraceous, or melleous.
    Pileus about 1 cm. broad.
      Surface glabrous or nearly so.
        Pileus sessile. 39. *C. subcuneiformis.*
        Pileus attached by a dark-reddish-brown stipe. 40. *C. substipitatus.*
      Surface squamulose. 41. *C. cacaophyllus.*
    Pileus 3 cm. broad, decorated with minute, conic elevations. 42. *C. calolepidoides.*
  Pileus ochraceous-red, pulverulent, deeply lacerate. 43. *C. laceratus.*
  Pileus rufous, glabrous, not lacerate, although sometimes lobed. 44. *C. pyrrhus.*
  Pileus pale-brown or watery-brown.
    Pileus 8–12 mm. broad; lamellae serrulate. 45. *C. cuneiformis.*
    Pileus 1–2.5 cm. broad; lamellae not serrulate. 46. *C. aquosus.*

1. **Crepidotus latifolius** Peck, Bull. Torrey Club **26**: 66. 1899.

Pileus very thin, submembranous, sessile, suborbicular, gregarious, 3–6 mm. broad; surface hygrophanous, striatulate when moist, white and slightly pubescent when dry; context white; lamellae very broad, suborbicular, 5 or 6 times as wide as the thickness of the context, subdistant, extending beyond the margin of the pileus, white, becoming pale-ferruginous with age; spores globose, 5–6 μ in diameter.

TYPE LOCALITY: Ohio.
HABITAT: On much decayed wood.
DISTRIBUTION: Known only from the type locality.

2. **Crepidotus albidus** Ellis & Ev. Proc. Acad. Phil. **1894**: 322. 1894.

Pileus resupinate-sessile, 5–7.5 mm. broad; surface glabrous, whitish, margin incurved when dry; lamellae radiating from a lateral point, not crowded, thin, broad, pallid to yellowish-brown; spores unequally ellipsoid, yellowish-brown, 5 $\times$ 3.5 μ.

TYPE LOCALITY: Ann Arbor, Michigan.
HABITAT: On linden logs.
DISTRIBUTION: Known only from the type locality.

3. **Crepidotus herbarum** (Peck) Sacc. Syll. Fung. **5**: 888. 1887.

Agaricus herbarum Peck, Bull. Buffalo Soc. Nat. Sci. **1**: 53. 1873.

Pileus thin, resupinate, suborbicular, sometimes becoming reflexed, sessile, dimidiate, 4–10 mm. broad; surface white, clothed with a white, downy villosity, becoming less downy with age, margin incurved when young; lamellae rather narrow, subdistant, radiating from a naked lateral or eccentric point, white, becoming subferruginous; spores ellipsoid, 6–7.5 $\times$ 3–4 μ.

TYPE LOCALITY: North Greenbush, New York.
HABITAT: On dead stems of herbs and dead wood of deciduous trees.
DISTRIBUTION: Temperate North America south to New York and west to Washington and California.

4. Crepidotus applanatus (Pers.) Gill. Champ. Fr. 557. 1876.

Agaricus applanatus Pers. Obs. Myc. 1: 8. 1796.

Pileus very thin, variable in shape, suborbicular, reniform, cuneiform, or spathulate, plane or convex, sometimes slightly depressed behind, sessile or prolonged behind into a short, compressed, white-tomentose, stipe-like base, gregarious, 1.2–2.5 cm. long, 0.8–2 cm. broad; surface glabrous, hygrophanous, watery-white and striatulate on the margin when moist, white when dry; lamellae very narrow, linear, crowded, decurrent, white, becoming cinnamon; spores globose, 5–6.2 μ.

TYPE LOCALITY: Europe.
HABITAT: On old stumps and much decayed wood.
DISTRIBUTION: Eastern temperate North America; also in Europe.

5. Crepidotus hygrophanus Murrill, sp. nov.

Pileus soft, fleshy, narrowly sessile, dimidiate, convex-plane, attached by a white tuft of mycelium, gregarious, 1–2 cm. broad; surface whitish, hygrophanous, becoming nearly fulvous on drying, glabrous, minutely striate over the lamellae, the margin darker, more glabrous and more conspicuously striate in dried specimens; context mild to the taste; lamellae broad, not crowded, thin, entire; spores globose, smooth, pale-yellow under the microscope, usually uniguttulate, 5–6 μ.

Type collected on a rotten beech log at Lake Placid, Adirondack Mountains, New York, July 17–29, 1912, *W. A. & Edna L. Murrill 236*.
DISTRIBUTION: Known only from the type locality.

6. Crepidotus haerens (Peck) Sacc. Syll. Fung. 5: 880. 1887.

Agaricus haerens Peck, Ann. Rep. N. Y. State Mus. **35**: 132. 1884.

Pileus thin, convex, sessile, cuneiform or dimidiate, 8–24 mm. broad; surface glabrous or slightly squamulose, hygrophanous, watery-white or gray when moist, white or whitish when dry, margin striatulate when moist; lamellae moderately crowded, narrow, tapering toward each end, subcinereous, becoming brownish; spores ellipsoid, pale-ferruginous, 7.5 $\times$ 5 μ.

TYPE LOCALITY: Albany, New York.
HABITAT: On decaying wood.
DISTRIBUTION: New York and Indiana.

7. Crepidotus fraxinicola Murrill, sp. nov.

Pileus reniform, convex to subexpanded, not at first resupinate, rather thin, gregarious, 1–2 cm. broad; surface hygrophanous, dirty-white, at first fibrillose, becoming glabrous, except at the strigose-tomentose base; lamellae rather narrow, crowded, several times inserted, white to isabelline, subentire and whitish on the edges; spores ellipsoid, smooth, pale-yellow under the microscope, 7–8 $\times$ 3–5 μ.

Type collected on a dead ash trunk, the hymenophores emerging from cracks in the bark, at West Park, New York, July 24, 1903, *F. S. Earle 1507* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

8. Crepidotus alabamensis Murrill, sp. nov.

Pileus reniform, convex, not expanding, narrowly attached, gregarious, 1–1.5 cm. broad; surface smooth, glabrous, strigose behind, whitish, much wrinkled on drying, margin entire, concolorous, not striate; context white, rather tough, not readily decaying; lamellae thin, narrow, crowded, pale-isabelline, becoming darker at maturity, entire and concolorous on the edges; spores ellipsoid, pale-yellow under the microscope, smooth, 7–8 $\times$ 4 μ.

Type collected on persimmon bark at Palmetto Swamp, near Auburn, Alabama, September 1, 1899, *F. S. Earle* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

9. Crepidotus versutus (Peck) Sacc. Syll. Fung. 5: 888. 1887.

Agaricus chimonophilus Peck, Ann. Rep. N. Y. State Mus. **27**: 96. 1875. Not *A. chimonophilus* Berk. & Br. 1854.
Agaricus versutus Peck, Ann. Rep. N. Y. State Mus. **30**: 70. 1878.

Pileus at first resupinate, becoming reflexed, reniform, or dimidiate, sessile, 0.8–2 cm. broad; surface clothed with a soft, downy or tomentose villosity, white, margin incurved;

lamellae rather broad, subdistant, rounded behind, radiating from a lateral or eccentric point, whitish, becoming ferruginous; spores subellipsoid, 8.5–10 × 6–7.5 μ.

TYPE LOCALITY: Forestburgh, New York.
HABITAT: On decaying wood, bark, etc., in damp, shaded places.
DISTRIBUTION: Temperate North America west to Colorado.
ILLUSTRATIONS: Atk. Stud. Am. Fungi ed. 1. *f. 150;* ed. 2. *f. 154;* Hard, Mushr. *f. 227.*

10. **Crepidotus Betulae** Murrill, sp. nov.

Pileus fleshy, rather thick, suborbicular or reniform, dimidiate, about 2 cm. broad; surface dry, villose with felted hairs, glabrous toward the margin with age, pure-white, margin entire, concolorous; lamellae rounded behind, crowded, broad, plane, pure-white, at length colored by the spores, which are ellipsoid, dark-ochraceous, 7–8 × 4–6 μ.

Type collected on fallen twigs of *Betula lenta* in the New York Botanical Garden, June, 1902, *F. S. Earle 241* (herb. N. Y. Bot. Gard.).
HABITAT: On dead wood of birch and occasionally beech and certain other deciduous trees.
DISTRIBUTION: New York and the mountains of southwestern Virginia.

11. **Crepidotus putrigenus** (Berk. & Curt.) Sacc. Syll. Fung. 5: 883. 1887.

Agaricus putrigenus Berk. & Curt. Ann. Mag. Nat. Hist. III. 4: 292. 1859.

Pileus sessile, subreniform, densely imbricate, 2–5 cm. broad; surface dirty-white, tomentose, moist, margin slightly striate; lamellae rather crowded, broad, dirty-white to ferruginous; spores subglobose, 7 μ long.

TYPE LOCALITY: Santee Canal, South Carolina.
HABITAT: On moist, decayed logs.
DISTRIBUTION: New York to Alabama and west to Missouri.
EXSICCATI: Rav. Fungi Am. *410.*

12. **Crepidotus malachius** (Berk. & Curt.) Sacc. Syll. Fung. 5: 883. 1887.

Agaricus malachius Berk. & Curt. Ann. Mag. Nat. Hist. III. 4: 291. 1859.

Pileus fleshy, thin on the margin, thicker at the base, reniform, orbicular, cuneate or flabellate, convex or nearly plane, sometimes depressed behind, sessile or with a very short, inconspicuous, white, tomentose stipe, solitary, gregarious, or imbricate, 2.5–6.5 cm. broad; surface glabrous or slightly tomentose at the base, hygrophanous, watery-white or grayish-white and striatulate on the thin margin when moist, white when dry; context white; lamellae thin, crowded, rounded behind, white or whitish, becoming brownish-ferruginous; spores globose, 6–7.5 μ.

TYPE LOCALITY: New England.
HABITAT: Much decayed, prostrate, mossy trunks.
DISTRIBUTION: Maine to Washington and south to Alabama and Ohio.
ILLUSTRATIONS: Bull. N. Y. State Mus. 122: *pl. 112, f. 1–4.*

13. **Crepidotus mollis** (Schaeff.) Quél. Champ. Jura Vosg. 106. 1872.

Agaricus mollis Schaeff. Fung. Bavar. 4: Ind. 49. 1774.

Pileus fleshy, soft, obovate or reniform, often undulate or lobed, 3–8 cm. broad; surface glabrous, flaccid, pallid, canescent; lamellae decurrent, crowded, linear, 2–5 mm. broad, white to watery-cinnamon; spores brownish-fuscous, 8–9 × 5–6 μ; cystidia filiform, 35 × 4 μ.

TYPE LOCALITY: Bavaria.
HABITAT: On decayed logs of both deciduous and evergreen trees.
DISTRIBUTION: New England to Washington and south to Alabama and California; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 498 (535);* Hussey, Ill. Brit. Myc. 1: *pl. 74;* Lucand, Champ. Fr. *pl. 112;* Pat. Tab. Fung. 1: *pl. 227;* Ricken, Blätterp. Deutschl. *pl. 61, f. 1;* Schaeff. Fung. Bavar. *pl. 213.*
EXSICCATI: Rav. Fungi Car. 3: *2;* Sydow, Myc. Mar. *3420* (as *C. applanatus*).

14. **Crepidotus pecten** (Berk. & Curt.) Sacc. Syll. Fung. **5**: 885. 1887.

Agaricus pecten Berk. & Curt. Ann. Mag. Nat. Hist. III. **4**: 292. 1859.

Pileus resupinate to reflexed, flabelliform, 4 mm. broad; surface tomentose, ochraceous, margin crenate-sulcate; context white; lamellae rather broad, umbrinous at maturity, the edges fimbriate; spores subellipsoid, pale-ochraceous, 7–8 μ long.

TYPE LOCALITY: North Carolina.
HABITAT: On dead branches.
DISTRIBUTION: North Carolina.

15. **Crepidotus distans** Peck, Ann. Rep. N. Y. State Mus. **44**: 132 (20). 1891.

Pileus membranous, convex, 4–8 mm. broad; surface distantly sulcate-striate, minutely pubescent, tawny; lamellae broad, ventricose, very distant, adnate, concolorous; spores ellipsoid, 10–12.5 $\times$ 6–7.5 μ; stipe minute eccentric, reddish-brown about 2 mm. long.

TYPE LOCALITY: Carrollton, New York.
HABITAT: On the bark of a thorn tree, *Crataegus tomentosa*.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **44**: *pl. 2, f. 4–7*.

16. **Crepidotus sepiarius** Peck, Bull. Torrey Club **25**: 324. 1898.

Pileus thin, convex, subumbilicate, 4–8 mm. broad; surface even, very minutely squamulose, grayish-tawny; lamellae adnexed, minutely crenulate on the edges, tawny; spores broadly ellipsoid, commonly uninucleate, 9–10 $\times$ 6 μ; stipe short, curved, generally eccentric, rarely central, brownish, sometimes mealy or pulverulent, 2–4 mm. long.

TYPE LOCALITY: Michigan.
HABITAT: On oak rails.
DISTRIBUTION: Known only from the type locality.

17. **Crepidotus croceitinctus** Peck, Ann. Rep. N. Y. State Mus. **39**: 72. 1887.

Pileus convex or nearly plane, sessile, 1–2.5 cm. broad; surface glabrous, sometimes with a white villosity at the base, moist, yellowish; lamellae moderately broad, rounded behind, whitish, becoming dull-saffron-yellow, then ferruginous; spores subglobose or broadly ellipsoid, ferruginous, 5–6 μ long.

TYPE LOCALITY: Adirondack Mountains, New York.
HABITAT: On decaying deciduous wood.
DISTRIBUTION: Known only from the type locality.

18. **Crepidotus nephrodes** (Berk. & Curt.) Sacc. Syll. Fung. **5**: 882. 1887.

Agaricus nephrodes Berk. & Curt. Ann. Mag. Nat. Hist. II. **12**: 422. 1853.

Pileus thin, plane, suborbicular, reniform or subspatulate, gregarious, sometimes imbricate, 2.5 cm. or more broad; surface dingy, with yellowish-white down, margin inflexed, flesh-white; lamellae gradually attenuate behind, concolorous, ventricose; spores globose, rosy-ferruginous; stipe obsolete or very short.

TYPE LOCALITY: South Carolina.
HABITAT: On dead wood.
DISTRIBUTION: North Carolina and South Carolina.

19. **Crepidotus crocophyllus** (Berk.) Sacc. Syll. Fung. **5**: 886. 1887.

Agaricus crocophyllus Berk. Lond. Jour. Bot. **6**: 313. 1847.

Pileus sessile, not at first resupinate, subflabelliform, convex, scarcely 12 mm. broad; surface ochraceous-brown, clothed with minute, appressed scales; lamellae rather broad, crowded, rounded behind, orange; spores subglobose, pale-ochraceous-yellow, 6 μ; stipe wanting.

TYPE LOCALITY: Waynesville, Ohio.
HABITAT: On dead logs.
DISTRIBUTION: Ohio.

20. Crepidotus fulvifibrillosus Murrill, sp. nov.

Pileus conchate, attached by a rather narrow base, not fully expanding, fragile, gregarious, 1–2 cm. long and 1.5–2.5 cm. broad; surface uniformly dull-white, with tawny, fibrillose scales, strigose behind, margin thin, concolorous, entire to undulate or lobed, often lacerate with age; lamellae rather narrow, crowded, white, soon colored by the spores, entire and concolorous on the edges; spores globose, smooth, pale-yellow under the microscope, 4–5 μ.

Type collected on a dead oak stump in deciduous woods at Falls Church, Virginia, July 2–6, 1904, *W. A. Murrill 104* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

21. Crepidotus calolepis (Fries) Quél. Ench. Fung. 108. 1886.

Agaricus calolepis Fries, Oefv. Sv. Vet.-Akad. Förh. **30**[5]: 5. 1873.
Crepidotus fulvotomentosus Peck, Ann. Rep. N. Y. State Mus. **26**: 57. 1874.

Pileus suborbicular, reniform, or dimidiate, sessile or attached by a short, white-villose tubercle or rudimentary stipe, scattered or gregarious, 2.5–5 cm. broad; surface hygrophanous, watery-brown and sometimes striatulate on the margin when moist, whitish, yellowish, or pale-ochraceous when dry, adorned with small, tawny or reddish-brown, hairy or tomentose scales; lamellae broad, subventricose, moderately crowded, rounded behind, radiating from a lateral or eccentric white-villose spot, whitish, becoming brownish-ferruginous; spores ellipsoid, often uniguttulate, 8–9 × 5–6 μ.

TYPE LOCALITY: Europe.
HABITAT: Dead wood of poplar, basswood, and various other trees.
DISTRIBUTION: Throughout temperate North America; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 499* (*534*)*b*; Fries, Ic. Hymen. *pl. 129*, *f. 4*.

22. Crepidotus tiliophilus (Peck) Sacc. Syll. Fung. 5: 886. 1887.

Agaricus tiliophilus Peck, Ann. Rep. N. Y. State Mus. **35**: 133. 1884.

Pileus moderately thin, convex, 1–2.5 cm. broad; surface minutely pulverulent, hygrophanous, watery-brown and striatulate on the margin when moist, dingy-buff when dry; lamellae rather broad, subdistant, rounded behind, adnexed, concolorous, becoming ferruginous-cinnamon; spores subellipsoid, brownish-ferruginous, 6–7.5 × 4–5 μ; stipe solid, often curved, pruinose, whitish-pubescent at the base, 4–8 mm. long, about 2 mm. thick.

TYPE LOCALITY: East Berne, New York.
HABITAT: On dead trunks and branches of basswood, *Tilia americana*.
DISTRIBUTION: Known only from the type locality.

23. Crepidotus flammeus Murrill, sp. nov.

Pileus reniform, convex, rarely slightly depressed behind, sessile or with a short stipe, 1–1.5 cm. broad; surface dry, ferruginous-orange, conspicuously imbricate-squamulose, margin slightly appendiculate, paler, not striate; context yellow, with bitter taste; lamellae adnate, rather broad, subcrowded, pale-yellow to ferruginous, paler and beautifully crenate on the edges; spores broadly ellipsoid, smooth, ferruginous, 7 × 4–5 μ.

Type collected on dead, deciduous wood in mixed woods at Crabbottom, Virginia, July 17–21, 1904, *W. A. Murrill 221* (herb. N. Y. Bot. Gard.).
HABITAT: On fallen branches and dead logs of deciduous trees.
DISTRIBUTION: Connecticut to the mountains of Virginia and Tennessee, and in southern Florida.

24. Crepidotus rubriflavus Murrill.

Agaricus dorsalis Peck, Ann. Rep. N. Y. State Mus. **24**: 69. 1872. Not *A. dorsalis* Bosc, 1811.
Crepidotus dorsalis Sacc. Syll. Fung. **5**: 883. 1887.

Pileus sessile, dimidiate or subreniform, plane or slightly depressed behind, 1.5–3 cm. broad; surface slightly fibrillose-tomentose, reddish-yellow, margin substriate, decurved; lamellae crowded, ventricose, rounded behind, radiating from a lateral, white, villose spot, yellowish, becoming brownish-ochraceous or subferruginous; spores globose, 6 μ in diameter.

TYPE LOCALITY: Greig, New York.
HABITAT: On old logs in woods.
DISTRIBUTION: New York to Michigan and Ohio.

25. **Crepidotus rufolatericius** Bres. Hedwigia 24: 186. 1885.

Pileus membranous, resupinate, rarely reflexed, cupulate, 2–4 mm. broad; surface glabrous, latericio-rufous, margin lobed; lamellae radiating from an eccentric point, distant, broad, ventricose, concolorous, the edges white, rounded at the ends; spores ovoid, flavid, 10–12 × 8 μ.

TYPE LOCALITY: Missouri.
HABITAT: On bark of *Crataegus*.
DISTRIBUTION: Known only from the type locality.
EXSICCATI: Rab.-Wint.-Paz. Fungi Eur. *3941*.

26. **Crepidotus cinnabarinus** Peck, Bull. Torrey Club 22: 489. 1895.

Pileus thin, sessile, resupinate or reflexed, 6–15 mm. broad; surface minutely tomentose or pulverulent, cinnabar-red; lamellae rather broad, subdistant, minutely reddish-flocculent on the edges, brownish-tawny in dried specimens; spores broadly ellipsoid, 7.5 × 6–7 μ.

TYPE LOCALITY: Michigan.
HABITAT: On decaying wood.
DISTRIBUTION: Michigan, Ohio, and Alabama.

27. **Crepidotus puberulus** Peck, Bull. Torrey Club 25: 324. 1898.

Pileus thin, reniform or suborbicular, nearly plane, wood-loving, 6–10 mm. broad; surface minutely pubescent, brown; lamellae ventricose, rather broad, rusty-brown when mature, whitish on the edges; spores subellipsoid, usually uninucleate, 9–10 × 5–6 μ; stipe equal, curved, lateral or eccentric, brown, with a patch of white mycelium at the base, 2–4 mm. long.

TYPE LOCALITY: Compton, California.
HABITAT: On decaying wood.
DISTRIBUTION: Known only from the type locality.

28. **Crepidotus submollis** Murrill, Mycologia 4: 245. 1912.

Pileus sessile, reniform to subcircular, lobed, wood-loving, 2–4 cm. broad; surface white to discolored, finely silky, radially sulcate or plicate, strigose-hirsute behind; lamellae white to ferruginous, rather broad, not distant, edges concolorous; spores ellipsoid, smooth, melleous under a microscope, 9 × 4–5 μ.

TYPE LOCALITY: Seattle, Washington.
HABITAT: On dead wood in woods.
DISTRIBUTION: Washington, Oregon, and California.

29. **Crepidotus parvulus** Murrill, Mycologia 5: 27. 1913.

Pileus thin, soft, fleshy, resupinate, at first orbicular-reniform, becoming conchiform and convex, gregarious, 1–4 mm. broad; surface pure-white, dry, densely floccose-pulverulent, margin even; lamellae radiating from an eccentric point, rounded behind, distant, thin, broad, white to yellowish-ochraceous; spores globose or subangular, smooth, pale-ochraceous, 4–5 μ; stipe none, point of attachment white, strigose.

TYPE LOCALITY: Hope Gardens, Jamaica.
HABITAT: On dead orange branches.
DISTRIBUTION: Known only from the type locality.

30. **Crepidotus Citri** Pat. Bull. Soc. Myc. Fr. 18: 172. 1902.

Pileus resupinate to subsessile, thin, soft, orbicular, convex, small, indented-reniform behind, scattered, 2–5 mm. broad; surface russet-white, smooth, neither striate nor incised, glabrous; lamellae radiating from an eccentric point, narrow, ochraceous; spores ovoid, smooth, pale-yellow, 7 × 4 μ; stipe eccentric, inconspicuous, fugacious, white, inserted at the center of a delicate, white, mycelial tuft.

TYPE LOCALITY: Camp Jacob, Guadeloupe.
HABITAT: On dying bark of *Citrus*.
DISTRIBUTION: Guadeloupe and Martinique.

31. **Crepidotus eccentricus** Murrill, sp. nov.

Pileus small, subcircular, convex, not umbonate, closely gregarious, 5 mm. broad; surface smooth, glabrous, isabelline, margin entire, concolorous, incurved; lamellae adnate, broad, ventricose, subcrowded, yellowish to isabelline, entire on the edges; spores broadly ellipsoid to subglobose, smooth, pale-yellowish-brown under the microscope, 5–6 × 4–5 μ; stipe eccentric, very short, enlarged above and below, whitish-mycelioid throughout and arising from a mat of white mycelium, 2 mm. or less long, 0.5 mm. thick.

Type collected on fallen, dead, herbaceous stems in a shaded ravine east of Hope Gardens, Jamaica, December 12, 1908, *W. A. Murrill 21* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

32. **Crepidotus Dussii** Pat. Bull. Soc. Myc. Fr. 18: 173. 1902.

Pileus convex, orbicular, indented behind, 3–5 mm. broad; surface slightly viscid, glabrous, not striate, chrome-yellow, margin incurved and entire; lamellae inserted, broad, distant, brownish-yellow; spores ovoid, smooth, ochraceous, 8–9 × 6 μ.

TYPE LOCALITY: Baines-Jaunes, Guadeloupe.
HABITAT: On dead wood.
DISTRIBUTION: Guadeloupe and Martinique.

33. **Crepidotus Psychotriae** Pat. Bull. Soc. Myc. Fr. 18: 173. 1902.

Pileus fleshy, firm, sessile, convex, orbicular, indented or marginate behind, scattered or cespitose, 0.5–1 cm. broad; surface not furrowed, glabrous, smooth, pale-ochraceous, margin entire; lamellae inserted, crowded, broad, brownish, serrate on the edges; spores ovoid, smooth, pale-brown, 8 × 5 μ.

TYPE LOCALITY: Guadeloupe.
HABITAT: On dying branches of *Psychotria glabrata*.
DISTRIBUTION: Guadeloupe and Martinique.

34. **Crepidotus bicolor** Murrill, Mycologia 5: 28. 1913.

Pileus thin, rather firm, sessile, dimidiate or flabelliform, usually narrowed behind, the base not strigose, convex or applanate above, gregarious, 5–8 mm. broad; surface dry, glabrous or subglabrous, testaceous to latericious, margin undulate, somewhat sulcate with age or on drying; lamellae radiating from the point of attachment, broad, distant, ventricose, ochraceous-ferruginous; spores globose or subglobose, smooth, ochraceous under a microscope, 6–7 μ.

TYPE LOCALITY: British Honduras.
HABITAT: On dead wood.
DISTRIBUTION: Known only from the type locality.

35. **Crepidotus cinchonensis** Murrill, Mycologia 5: 30. 1913.

Pileus thin, soft, fleshy, convex to plane above, reniform to orbicular, gregarious, attached by a lateral or eccentric point, or by the vertex, sometimes strigose at the base, appearing esupinate when growing on the under side of a trunk, reaching 2 cm. in diameter; surface dull-watery-white, pulverulent to nearly glabrous, striate, margin very thin, pellucid, darker than the rest of the surface on drying; lamellae radiating from a lateral or eccentric point, crowded, thin, fragile, slightly ventricose, dull-watery-white, becoming subfulvous at maturity; spores ovoid to ellipsoid, smooth, pale-melleous under a microscope, 1–few-guttulate, 8–9 × 4–5 μ.

TYPE LOCALITY: Cinchona, Jamaica.
HABITAT: On dead branches of broad-leaved trees.
DISTRIBUTION: Jamaica.

36. **Crepidotus sulcatus** Murrill, Mycologia 5: 29. 1913.

Pileus reniform, dimidiate or resupinate, thin, soft, fleshy, gregarious, 1–2 cm. broad; surface white, becoming ochraceous when dry, glabrous, strigose at the base, sulcate-striate on the margin; lamellae radiating from an eccentric or lateral point, crowded or subcrowded,

rather broad, dark-ochraceous or pale-cinnamon; spores broadly ellipsoid, smooth, pale-cinnamon, 7–8 × 6–7 μ; stipe none, pileus attached by a tuft of strigose hairs.

TYPE LOCALITY: Cooper's ranch at the base of El Yunque, near Baracoa, Cuba.
HABITAT: On dead, fallen branches.
DISTRIBUTION: Known only from the type locality.

37. **Crepidotus musaecola** (Berk. & Curt.) Sacc. Syll. Fung. **5**: 883. 1887.

Agaricus musaecola Berk. & Curt. Jour. Linn. Soc. **10**: 291. 1868.

Pileus thin, hemispheric to helmet-shaped, 12 mm. broad; surface white; lamellae adnexed, broad, pallid-fuscous or purple-fuscous; spores obovoid, purplish-brown; stipe at first central, then eccentric and lateral, very short, pulverulent.

TYPE LOCALITY: Cuba.
HABITAT: On dead plantain leaves near the ground.
DISTRIBUTION: Cuba.

38. **Crepidotus fumosifolius** Murrill, Mycologia **5**: 31. 1913.

Pileus sessile, dimidiate or reniform, thin, firm, fleshy, expanded at maturity, scattered, 2–3 cm. broad; surface glabrous or slightly pruinose, whitish or with ochraceous tints, margin even; lamellae crowded, narrow, becoming very dark-fuscous or almost purplish, resembling those of species of *Hypholoma;* spores ellipsoid or ovoid, dark-fuscous, 6–7 × 4 μ.

TYPE LOCALITY: Rose Hill, Jamaica.
HABITAT: On a dead log.
DISTRIBUTION: Known only from the type locality.

39. **Crepidotus subcuneiformis** Murrill, Mycologia **5**: 29. 1913.

Pileus thin, rather firm, fragile on drying, broadly wedge-shaped, approaching orbicular, in outline, plane above, tapering to a rather broad base which is not strigose, gregarious, reaching 1 cm. broad and becoming somewhat longer; surface glabrous or pulverulent, moist, dull-isabelline to avellaneous-isabelline, margin very thin, entire, not striate; lamellae radiating from the sessile base, subcrowded, plane, dull-yellowish to umbrinous; spores ovoid, smooth, melleous under a microscope, uniguttulate, 7–8 × 5 μ.

TYPE LOCALITY: Grenada, West Indies.
HABITAT: On decaying cocoanut husks.
DISTRIBUTION: Known only from the type locality.

40. **Crepidotus substipitatus** Murrill, Mycologia **5**: 31. 1913.

Pileus soft, fleshy, thin, very fragile when dry, orbicular-reniform, expanded, gregarious, about 1 cm. broad; surface moist, subglabrous, dull-ochraceous, not striate on the margin; lamellae adnexed, subcrowded, rather broad, ventricose, ochraceous to dull-cinnamon; spores ovoid or broadly ellipsoid, opaque, dull-cinnamon, minutely punctate, 5–6 × 4 μ; stipe eccentric, short, curved, cylindric, glabrous, shining, dark-reddish-brown, 4–8 mm. long, 1 mm. thick.

TYPE LOCALITY: El Yunque, near Baracoa, Cuba.
HABITAT: On dead twigs on the ground.
DISTRIBUTION: Known only from the type locality.

41. **Crepidotus cacaophyllus** (Berk. & Curt.) Sacc. Syll. Fung. **5**: 883. 1887.

Agaricus cacaophyllus Berk. & Curt. Jour. Linn. Soc. **10**: 291. 1868.

Pileus eccentric, subreniform, 12 mm. broad; surface squamulose, yellowish, margin tomentose; lamellae adnexed, attenuate behind, distant, fuscous; spores ochraceous; stipe short, 5 mm. long, 2 mm. thick.

TYPE LOCALITY: Cuba.
HABITAT: On dead wood.
DISTRIBUTION: Known only from the type locality.

42. **Crepidotus calolepidoides** Murrill, Mycologia **5**: 30. 1913.

Pileus rather thick, fleshy, strongly convex above, concave below, solitary, narrowly attached behind, 3 cm. broad; surface melleous with an ochraceous tint on the umbo, which is decorated with minute, fulvous, conic elevations; margin striate, dull-brownish in dried specimens, being very distinct in color from the remainder of the surface; attachment of pileus white, finely pubescent or slightly strigose· lamellae broad, not crowded, slightly arcuate, cremeous to fulvous; spores ovoid, smooth, dull-melleous, 8–10 × 5–6 μ.

TYPE LOCALITY: Latimer trail, Cinchona, Jamaica.
HABITAT: On a small dead branch of a deciduous shrub.
DISTRIBUTION: Known only from the type locality.

43. **Crepidotus laceratus** Pat. Bull. Soc. Myc. Fr. **18**: 173. 1902.

Pileus fleshy, flabelliform, attenuate at the base, 1–1.5 cm. broad; surface rugulose, deeply lacerate, ochraceous-red, pulverulent; lamellae inserted, crowded, concolorous, the edges entire; spores ovoid, verrucose, ochraceous, 5–6 × 4–5 μ.

TYPE LOCALITY: Guadeloupe.
HABITAT: On dead wood.
DISTRIBUTION: Guadeloupe.

44. **Crepidotus pyrrhus** (Berk. & Curt.) Sacc. Syll. Fung. **5**: 879. 1887.

Agaricus pyrrhus Berk. & Curt. Jour. Linn. Soc. **10**: 291. 1868.

Pileus sessile, conchiform, 1–3 cm. broad; surface glabrous, rufous; lamellae broad, concolorous; spores ferruginous, echinulate.

TYPE LOCALITY: Cuba.
HABITAT: On decayed wood.
DISTRIBUTION: Cuba, western Jamaica, and Guadeloupe.

45. **Crepidotus cuneiformis** Pat. Bull. Soc. Myc. Fr. **18**: 173. 1902.

Pileus convex to plane, incurved in front, cuneate at the base, fleshy, soft, 8–12 mm. broad; surface glabrous, pale-brown, margin striatulate; lamellae broad, soft, brownish, inserted, slightly serrulate on the edges, radiating from the point of insertion of the pileus; spores globose, smooth, brown, 6 μ.

TYPE LOCALITY: Guadeloupe.
HABITAT: On dead wood.
DISTRIBUTION: Guadeloupe.

46. **Crepidotus aquosus** Murrill, Mycologia **5**: 30. 1913.

Pileus resupinate, thin, delicate, reniform, expanded at maturity, 1–2.5 cm. broad; surface moist, glabrous or subglabrous, watery-brown, deeply sulcate on the margin; context soft and watery; lamellae subcrowded, rather broad, dark-ochraceous or subfulvous; spores globose, smooth, dark-ochraceous, 6–7 μ.

TYPE LOCALITY: Rose Hill, Jamaica.
HABITAT: On a decayed log.
DISTRIBUTION: Known only from the type locality.

DOUBTFUL AND EXCLUDED SPECIES

Crepidotus alveolus (Lasch) P. Karst. Bidr. Finl. Nat. Folk **32**: 413. 1879. (*Agaricus alveolus* Lasch, Linnaea **4**: 547. 1829.) Described from specimens collected on beech trunks in Germany. Reported from Wright's collections in Cuba, which apparently represent *C. musaecola*, and from Duss' collections in Guadeloupe. In referring specimens from St. Vincent, West Indies, to *C. alveolus* in 1892, Massee remarks that they are larger and more crisped and lobed than in the European form, but that there exists no good specific or even varietal distinction between the two forms.

Crepidotus haustellaris (Fries) P. Karst. Bidr. Finl. Nat. Folk **32**: 415. 1879. (*Agaricus haustellaris* Fries, Obs. Myc. **2**: 232. 1818.) Doubtfully reported by Peck from New York.

I have compared his specimens with good material from Bresadola and they appear to be quite distinct.

Crepidotus hepatizon (Berk.) Sacc. Syll. Fung. **5**: 879. 1887. (*Agaricus hepatizon* Berk. Lond. Jour. Bot. **6**: 486. 1847.) A Ceylon species reported from California by McClatchie.

65. TUBARIA (W. G. Smith) Gill. Champ. Fr. 537. 1876.

Agaricus § *Tubaria* W. G. Smith, Clavis Agar. 21. 1870.

Pileus fleshy, putrescent, the margin incurved when young; lamellae decurrent; spores ochraceous, ferruginous, or fulvous; stipe central, slender, tubular, cartilaginous; veil sometimes present in young stages, but forming no annulus.

Type species, *Tubaria inquilina* (Fries) Gill.

I. SPECIES OCCURRING IN TEMPERATE NORTH AMERICA, EXCEPT THOSE CONFINED TO THE PACIFIC COAST

Pileus grayish-white or canescent, 4–6 mm. broad.	1. *T. canescens.*
Pileus pale-yellow, ochraceous, or reddish-brown fading to ochraceous on drying.	
Pileus 5–10 mm. broad.	
Pileus pale-ochraceous when moist; species occurring in moss.	2. *T. praecox.*
Pileus brown when moist; species occurring on fragments of wood in fields.	3. *T. alabamensis.*
Pileus 1–2.5 cm. broad.	
Stipe 1–2 cm. long.	
Lamellae adnate-decurrent.	4. *T. luteoalba.*
Lamellae strongly decurrent.	5. *T. decurrens.*
Stipe 2.5–6 cm. long.	
Pileus conic to campanulate with a slight umbo.	6. *T. bicona.*
Pileus umbilicate or depressed.	
Species occurring on dung.	7. *T. deformata.*
Species occurring on soil or fallen dead wood.	
Hymenophores gregarious.	8. *T. crenulata.*
Hymenophores cespitose.	9. *T. Earlei.*

II. SPECIES OCCURRING ON THE PACIFIC COAST

Pileus glabrous.	
Pileus cremeous.	10. *T. Abramsii.*
Pileus ferruginous or reddish-cinnamon when moist.	
Stipe about 1 cm. long.	11. *T. brevipes.*
Stipe 2.5–5 cm. long.	12. *T. tenuis.*
Pileus brick-red when moist.	13. *T. pallescens.*
Pileus furfuraceous.	8. *T. crenulata.*

III. SPECIES CONFINED TO TROPICAL NORTH AMERICA

Pileus date-brown, pulverulent; stipe 4 mm. thick.	14. *T. coniophora.*

1. Tubaria canescens Peck, Ann. Rep. N. Y. State Mus. 46: 104 (24). 1893.

Pileus very thin, almost membranous, convex, 4–6 mm. broad; surface grayish-white or canescent, coated with minute, whitish fibrils or appressed tomentum; lamellae distant, decurrent, cinnamon-colored; spores ellipsoid, often containing a shining nucleus, $6 \times 4 \mu$; stipe slender, whitish, fibrillose, with a white mycelium at the base, 12–16 mm long.

TYPE LOCALITY: Selkirk, New York.
HABITAT: On damp, naked soil in woods.
DISTRIBUTION: Known only from the type locality.

2. Tubaria praecox Murrill, sp. nov.

Pileus convex-umbilicate, gregarious, 5–10 mm. broad; surface dry, silky-fibrillose, pale-ochraceous, margin thin, entire, concolorous; lamellae long-decurrent, subcrowded, broad, rosy-ochraceous, entire and concolorous on the edges; spores ovoid to ellipsoid, smooth, pale-yellowish under the microscope, $8 \times 4 \mu$; stipe somewhat enlarged at the apex, fulvous with a rosy tint, glabrous above, subfibrillose below, tough, solid or with a minute cavity, 2 cm. long, 1 mm. thick.

Type collected in moss by the roadside in the New York Botanical Garden, June 15, 1902, *F. S. Earle 276* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

3. **Tubaria alabamensis** Murrill, sp. nov.

Pileus subcampanulate, obtuse, solitary or gregarious, reaching 1 cm. broad; surface clothed with white, silky hairs when young, becoming glabrous, brown when moist, argillaceous when dry, margin even, or subsulcate on drying; lamellae long-decurrent, arcuate, subdistant, pale-cinnamon-colored; spores ellipsoid, pale-yellow under the microscope, 8 × 5 μ; stipe tapering downward, white-silky-fibrillose, becoming glabrous, stuffed, 2 cm. long, 1 mm. thick.

Type collected on fragments of wood in fields at Auburn, Alabama, February 17, 1901, *F. S. Earle* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

4. **Tubaria luteoalba** Longyear, Bot. Gaz. 28: 272. 1899.

Pileus thin, convex to plane and centrally depressed, 1–2.5 cm. broad; surface hygrophanous, creamy-white or yellowish, margin often upturned, silky-squamulose from the remains of the veil, striate when moist; lamellae adnate-decurrent, subdistant, 2–4 mm. broad, at first nearly white, soon becoming ochraceous; spores ellipsoid, 6–8 × 4–5 μ; stipe often curved, whitish, hollow, downy and slightly enlarged at the base, 1.5–2 cm. long, 3–5 mm. thick.

TYPE LOCALITY: Michigan.
HABITAT: On decaying stems and leaves of grasses and weeds in low, wet ground.
DISTRIBUTION: Known only from the type locality.

5. **Tubaria decurrens** (Peck) Murrill.

Flammula decurrens Peck, Bull. Torrey Club 22: 489. 1895.

Pileus thin, umbilicate, centrally depressed or funnelform, about 2.5 cm. broad; surface moist, minutely floccose-squamulose, pale-yellow or cream-colored; lamellae subdistant, strongly decurrent, pale-yellow, becoming ochraceous, the interspaces sometimes veiny; spores ellipsoid, 7.5–8.5 × 4 μ; stipe equal or tapering downward, minutely downy, stuffed with a cottony pith, concolorous, 12–20 mm. long, 2–4 mm. thick.

TYPE LOCALITY: Kansas.
HABITAT: On wet ground in the shade of bushes.
DISTRIBUTION: Known only from the type locality.

6. **Tubaria bicona** (Pers.) Murrill.

Agaricus biconus Pers. Syn. Fung. 317. 1801.
Agaricus pellucidus Bull. Herb. Fr. *pl. 550, f. 2.* hyponym. 1791; Lam. Fl. Fr. 2: 172. 1815.
Tubaria pellucida Gill. Champ. Fr. 1: 539. 1878.

Pileus conic to campanulate, becoming expanded, with a slight umbo, solitary, 1–2 cm. broad; surface watery, dull-reddish-brown, margin silky from the universal veil; context very thin; lamellae slightly decurrent, arcuate, very broad, fuligino-ferruginous; spores ovoid, pointed, smooth, uniguttulate, pale-yellow under the microscope, about 9 × 5 μ; stipe slender, tapering above, mealy at the apex, solid, becoming hollow, 3–4 cm. long, 2–3 mm. thick.

TYPE LOCALITY: Europe.
HABITAT: By roadsides in grassy places.
DISTRIBUTION: Greenland; also in Europe.
ILLUSTRATIONS: Bull. Herb. Fr. *pl. 550, f. 2;* Ricken, Blätterp. Deutschl. *pl. 59, f. 7* (as *Naucoria pellucida*).

7. **Tubaria deformata** Peck, Ann. Rep. N. Y. State Mus. 51: 290. 1898.

Pileus thin, convex, becoming plane or centrally depressed, 1.2–2.5 cm. broad; surface glabrous, hygrophanous, reddish-brown when moist, whitish when dry, margin often wavy or irregular; lamellae thin, crowded, broader behind, adnate or decurrent, often wavy, branched or anastomosing, brownish-ferruginous; spores broadly ellipsoid, 7.5 × 6 μ; stipe firm, hollow, tapering downward, clothed with grayish-white fibrils, 2.5–5 cm. long, 2–4 mm. thick.

TYPE LOCALITY: North Elba, New York.
HABITAT: On dung in old roads in woods.
DISTRIBUTION: Known only from the type locality.

8. Tubaria crenulata (Batsch) Murrill.

Agaricus crenulatus Batsch, Elench. Fung. 71. 1783.
Agaricus furfuraceus Pers. Syn. Fung. 454. 1801.
Tubaria furfuracea Gill. Champ. Fr. 538. 1876.
Agaricus contrarius Peck, Ann. Rep. N. Y. State Mus. **30**: 41. 1878.
Naucoria contraria Sacc. Syll. Fung. **5**: 842. 1887.
Tubaria Eucalypti Earle, Bull. N. Y. State Mus. **3**: 300. 1904.

Pileus thin, subfleshy, convex to plane or centrally depressed, often umbilicate, gregarious, 1.2–2 cm. broad; surface fulvous, becoming alutaceous when dry, hygrophanous, margin silky-squamose, subfarinaceous, at times striate; lamellae adnate-decurrent, subdistant, plane, cinnamon-colored or ochraceous; spores ovoid, ferruginous, 7–10 × 3–5 µ; cystidia 35–50 × 4.5–6 µ; stipe pallid, reddish, or reddish-brown, hollow, rigid, flocculose, white-mycelioid at the base, 2.5–6 cm. long, 2 mm. thick.

TYPE LOCALITY: Germany.
HABITAT: On the ground among pieces of wood or humus.
DISTRIBUTION: Greenland to North Carolina and west to Washington and California; also in Europe.
ILLUSTRATIONS: Boud. Ic. Myc. 1: *pl. 129;* Cooke, Brit. Fungi *pl. 603* (*527*), *483* (*528*); Gill. Champ. Fr. *pl. 367* (*709*); Pat. Tab. Fung. 1: *f. 348;* Ricken, Blätterp. Deutschl. *pl. 59, f. 5* (as *Naucoria furfuracea*).
EXSICCATI: C. F. Baker, Pacif. Slope Fungi *157;* Roum. Fungi Gall. *3620.*

9. Tubaria Earlei Murrill, sp. nov.

Pileus fleshy, firm, deeply umbilicate, cespitose, 1–2 cm. broad; surface ochraceous, floccose, not striate, margin entire or slightly lobed, concolorous; lamellae decurrent, crowded, narrow, ochraceous, subentire and concolorous on the edges; spores ellipsoid, apiculate, pale-yellow under the microscope, smooth, 8–10 × 4–6 µ; stipe enlarged above and below, densely floccose, ochraceous, solid, 2.5 cm. long, 2–3 mm. thick.

Type collected on the ground in a wet thicket at Chalmette, New Orleans, Louisiana, September 8, 1908, *F. S. Earle 121* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

10. Tubaria Abramsii Murrill, sp. nov.

Pileus convex to plane, not umbonate, gregarious, 1–2 cm. broad; surface smooth, glabrous, cremeous, margin entire, concolorous, not striate; context very thin, cremeous, without characteristic taste or odor; lamellae somewhat decurrent, broad, subcrowded, becoming fulvous; spores ellipsoid, smooth, very pale yellow under the microscope, 6–7 × 4–5 µ; stipe cylindric, glabrous, cremeous, cartilaginous, hollow, 2–4 cm. long, 1.5–3 mm. thick.

Type collected on rich grassy ground in the open at Stanford University, California, November 27, 1902, *L. R. Abrams & James McMurphy 62* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

11. Tubaria brevipes Peck, Harriman Alaska Exp. Crypt. 45. 1904.

Pileus thin, convex, 6–10 mm. broad; surface glabrous, ferruginous; lamellae broad, arcuate, distant, adnate or slightly decurrent, ferruginous; spores ellipsoid, uninucleate, 10–12 × 7–8 µ; stipe short, slender, glabrous, hollow, brown, 6–14 mm. long, scarcely 1 mm. thick.

TYPE LOCALITY: Port Clarence, Alaska.
HABITAT: On the ground.
DISTRIBUTION: Port Clarence, Alaska.

12. Tubaria tenuis Peck, Bull. Torrey Club 23: 415. 1896.

Pileus membranous, hemispheric or convex, obtuse or subumbilicate, 1–1.5 cm. broad; surface glabrous, hygrophanous, reddish-cinnamon when moist, cream-colored or pale-ochraceous when dry, either faintly striate or sulcate-striate on the margin; lamellae distant, ventricose, adnate or slightly decurrent, tawny-ochraceous, 2–4 mm. broad; spores ellipsoid, 7.5 × 5 µ; stipe slender, flexuous, often uneven, hollow, pruinose at the apex, downy at the base, pale-yellow or cream-colored, 2.5–5 cm. long, about 2 mm. thick.

TYPE LOCALITY: Pasadena, California.
HABITAT: Among mosses on gravelly hillsides.
DISTRIBUTION: Known only from the type locality.

13. **Tubaria pallescens** Peck, Bull. Torrey Club **22**: 202. 1895.

Pileus fleshy but thin, convex or nearly plane, sometimes slightly depressed at the center, 1–2 cm. broad; surface glabrous, hygrophanous, brick-red when moist, yellowish or cream-colored when dry; lamellae broad, adnate or slightly decurrent, tawny-buff, becoming brownish-ferruginous; spores ellipsoid, 7.5 × 4 μ; stipe slender, hollow, yellowish, with white mycelium at the base, 2.5–3.5 cm. long, 1–2 mm. thick.

TYPE LOCALITY: Pasadena, California.
HABITAT: Among sticks and leaves.
DISTRIBUTION: Known only from the type locality.

14. **Tubaria coniophora** (Berk.) Sacc. Syll. Fung. **5**: 875. 1887.

Agaricus coniophorus Berk. in Warming, Vidensk. Meddel. **1879–80**: 31. 1879.

Pileus circular, convex, 2.5 cm. broad; surface pulverulent, finely rimose, spadiceous; lamellae short-decurrent, concolorous; spores ferruginous; stipe slender, fibrillose, opaque, whitish-mycelioid at the base, 5 cm. long, 4 mm. thick.

TYPE LOCALITY: Near Rio de Janeiro, Brazil.
HABITAT: In soil.
DISTRIBUTION: Island of St. Thomas; also in South America.

DOUBTFUL AND EXCLUDED SPECIES

Tubaria inquilina (Fries) Gill. Champ. Fr. 538. 1876. (*Agaricus inquilinus* Fries, Syst. Myc. **1**: 264. 1821.) Reported from Ohio by Morgan, and also said to occur in Minnesota, California, and other states, but none of the specimens examined appear to agree with European material. The pileus is glabrous, viscid, and striate on the margin when moist.

Tubaria muscorum (Hoffm.) Gill. Champ. Fr. 539. 1876. (*Agaricus muscorum* Hoffm. Nom. Fung. *pl. 5, f. 3.* 1789.) Reported from Pennsylvania, North Carolina, and California as occurring among mosses.

Tubaria paludosa (Fries) P. Karst. Bidr. Finl. Nat. Folk **32**: 445. 1879. (*Agaricus paludosa* Fries, Epicr. Myc. 209. 1838.) Specimens from Michigan so named by Longyear seem to correspond very well with authentic material from Bresadola, but certain species of *Galerula* or *Naucoria* growing in sphagnum might be easily confused with this species.

66. **GALERULA** P. Karst. Bidr. Finl. Nat. Folk **32**: 442. 1879.

Galera Quél. Champ. Jura Vosg. 103. 1872. Not *Galera* Blume. 1825.
Conocybe Fayod, Ann. Sci. Nat. VII. **9**: 357. 1889.
Galerella Earle, Bull. N. Y. Bot. Gard. **5**: 422. 1909.
Galerina Earl, Bull. N. Y. Bot. Gard. **5**: 423. 1909.

Pileus thin, fleshy, putrescent, solitary or gregarious, conic or convex, the margin straight and appressed when young, rarely plicate-sulcate and splitting over the backs of the lamellae; lamellae adnate or adnexed; spores ochraceous or fulvous; stipe central, slender, tubular, cartilaginous, sometimes conically enlarged at the apex; veil rarely present in young stages, but soon vanishing.

Type species, *Galerula pityria* (Fries) P. Karst.

I. SPECIES OCCURRING IN TEMPERATE NORTH AMERICA, EXCEPT THOSE CONFINED TO THE PACIFIC COAST

Pileus 3–10 mm. broad, reaching 15 mm. in *G. Hypni*.	
Stipe 1–2 cm. long.	
Pileus 5 mm. broad, papillate.	1. *G. parvula*.
Pileus 10 mm. broad, umbonate.	2. *G. coniferarum*.
Stipe 2–5 cm. long.	
Species occurring in bare sandy soil or loam.	
Stipe 5 mm. thick.	3. *G. glabra*.
Stipe 10–20 mm. thick.	4. *G. Besseyi*.
Species occurring among mosses or grasses in shaded places.	5. *G. Hypni*.
Species occurring among grass in the open.	
Pileus 4–6 mm. broad.	6. *G. capillaripes*.
Pileus 6–10 mm. broad.	
Pileus campanulate.	7. *G. fragilis*.
Pileus hemispheric.	8. *G. hemisphaerica*.
Stipe 5–7 cm. long; pileus 3–4 mm. broad.	9. *G. tenerella*.

Pileus 1–3 cm. or more broad.
  Stipe 2.5 cm. long.
    Stipe white. — 10. *G. plicatella.*
    Stipe reddish-brown. — 11. *G. rufipes.*
  Stipe 2.5–5 cm. long, sometimes slightly longer in *G. reticulata.*
    Species occurring on dead, coniferous wood; pileus with a conic umbo. — 12. *G. lignicola.*
    Species occurring on mossy ground; pileus rugosely reticulate. — 13. *G. reticulata.*
    Species occurring on soil or manure.
      Stipe white. — 14. *G. Kellermani.*
      Stipe reddish-brown or cinnamon.
        Pileus striatulate; spores 15–16 μ long. — 15. *G. inculta.*
        Pileus not striatulate; spores 7.5–8.5 μ long. — 16. *G. teneroides.*
  Stipe 5–8 cm. long, sometimes shorter in *G. sulcatipes.*
    Pileus umbonate, densely tomentose. — 17. *G. pulchra.*
    Pileus not as above.
      Pileus yellow. — 18. *G. flava.*
      Pileus chestnut-colored. — 19. *G. sulcatipes.*
  Stipe 8–15 cm. long.
    Pileus isabelline to fulvous.
      Stipe 1–2 mm. thick. — 20. *G. tenera.*
      Stipe 2–5 mm. thick.
        Species occurring in sphagnum marshes. — 21. *G. sphagnorum.*
        Species not occurring in sphagnum marshes.
          Stipe 8–10 cm. long, 2–3 mm. thick; spores 12–14 μ long. — 22. *G. crispa.*
          Stipe 15 cm. long, 5 mm. thick; spores 7–8 μ long. — 23. *G. tortipes.*
    Pileus fuliginous.
      Pileus strongly striate to the umbo. — 24. *G. striatula.*
      Pileus striate on the margin only. — 25. *G. crocospora.*

II. SPECIES OCCURRING ON THE PACIFIC COAST

Species occurring on the bark of oak trees; pileus minute, umbilicate. — 26. *G. lirata.*
Species occurring in sphagnum marshes. — 21. *G. sphagnorum*
Species occurring among mosses or grasses or among leaves in woods.
  Pileus subcylindric, acuminate. — 27. *G. angusticeps*
  Pileus conic to campanulate.
    Stipe 2.5–5 cm. long. — 5. *G. Hypni.*
    Stipe 8–12 cm. long.
      Pileus 1–2 cm. broad. — 20. *G. tenera.*
      Pileus 2–6 cm. broad. — 22. *G. crispa.*

III. SPECIES OCCURRING IN TROPICAL NORTH AMERICA

Stipe 7–20 mm. long.
  Pileus about 5 mm. broad.
    Species occurring on decayed wood. — 28. *G. Martiana.*
    Species occurring on clay banks. — 29. *G. echinospora.*
  Pileus about 10 mm. broad. — 30. *G. distantifolia.*
Stipe 2.5–5 cm. long.
  Pileus cylindric. — 31. *G. macromastes.*
  Pileus subconic or campanulate. — 5. *G. Hypni.*
  Pileus becoming depressed with the margin reflexed. — 32. *G. reflexa.*
Stipe 8–12 cm. long.
  Pileus 1–2 cm. broad. — 20. *G. tenera.*
  Pileus 2–6 cm. broad.
    Margin striatulate. — 22. *G. crispa.*
    Margin not striatulate. — 33. *G. mexicana.*

1. Galerula parvula Murrill, sp. nov.

Pileus very small, thin, convex to expanded, conspicuously papillate, gregarious, 5 mm. broad; surface dry, smooth, glabrous, ochroleucous, margin fulvous, undulate, straight and appressed when young; lamellae adnate, ventricose, subcrowded, several times inserted, becoming fulvous, whitish and very slightly dentate on the edges; spores ovoid, smooth, melleous under the microscope, 7–8 × 4–5 μ; stipe slender, cylindric, equal, smooth, glabrous, fulvous, 1–1.5 cm. broad, less than 1 mm. thick.

Type collected in soil in woods at Unaka Springs, Tennessee, August 18–24, 1904, *W. A. Murrill 786* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

2. Galerula coniferarum Murrill, sp. nov.

Pileus conic to campanulate, not fully expanding, umbonate, gregarious, reaching 1 cm. broad; surface glabrous, dull-fulvous and somewhat striate, becoming isabelline and estriate

with the escape of moisture, margin entire, concolorous, straight and appressed when young; lamellae sinuate, rounded behind, distant, becoming fulvous, entire and concolorous on the edges; spores ovoid, smooth, melleous under the microscope, 7–8 × 3.5–5 μ; stipe very slender, equal, smooth, glabrous, pale-bay, 1–2 cm. long, less than 1 mm. thick.

Type collected on dead coniferous wood in woods at Lake Placid, Adirondack Mountains, New York, October 3–14, 1912, *W. A. & Edna L. Murrill 536* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Vicinity of Lake Placid, New York.

3. Galerula glabra Murrill, sp. nov.

Pileus conic to campanulate, not expanding, solitary, reaching 8 mm. broad; surface moist, not striate, entirely smooth and glabrous, uniformly dull-isabelline with a fulvous tint; lamellae adnate or adnexed, attenuate behind, very regular, not crowded, somewhat ventricose, dull-isabelline to fulvous, whitish-pruinose on the edges; spores ellipsoid, smooth, ferruginous under the microscope, 12–14 × 6–7 μ; stipe slender, equal, smooth, glabrous, concolorous, paler and pruinose at the apex, 2.5 cm. long, 0.5 mm. thick.

Type collected in soil on the side of a bank in the open at Lake Placid, Adirondack Mountains, New York, July 17–29, 1912, *W. A. & Edna L. Murrill 99* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

4. Galerula Besseyi (Peck) Murrill.

Galera Besseyi Peck, Bull. N. Y. State Mus. 131: 35. 1909.

Pileus thin, ovoid, rarely subglobose, obtuse, never expanding, 5–12 mm. high, 4–10 mm. broad; surface glabrous, isabelline or pale-dingy-ochraceous, the margin abruptly contracted and closely embracing the stipe; lamellae thin, crowded, ascending, adnate, ferruginous-brown; spores broadly ellipsoid, 13.5–16.5 × 10–12.5 μ; stipe slender, slightly flexuous, hollow, glabrous, even or slightly striate, concolorous, 2.5–5 cm. long, 1–2 mm. thick.

TYPE LOCALITY: Garden of the Gods, El Paso County, Colorado.
HABITAT: On sandy soil.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATIONS: Bull. N. Y. State Mus. 131: *pl. V, f. 15–20.*

5. Galerula Hypni (Batsch) Murrill.

Agaricus Hypni Batsch, Elench. Fung. Contin. 1: 117. 1786.
Agaricus hypnorum Schrank, Baier. Fl. 2: 605. 1789.
Agaricus bryorum Lasch, Linnaea 3: 416. 1828.
Galera hypnorum Quél. Champ. Jura Vosg. 105. 1872.
Galera bryorum Quél. Fl. Myc. Fr. 78. 1888.
Galera bryophila Peck, Ann. Rep. N. Y. State Mus. 54: 149. 1901.
Conocybe hypnorum Murrill, Mycologia 4: 75. 1912.
Conocybe bryorum Murrill, Mycologia 4: 247. 1912.

Pileus thin, membranous, subconic or campanulate, obtuse or papillate, 5–15 mm. broad; surface glabrous, hygrophanous, watery-cinnamon or subochraceous and striatulate when moist, becoming paler when dry, often fading to yellowish or buff, margin usually striate; lamellae thin, broad, distant, adnate, ventricose, white or whitish, becoming ochraceous-yellow, often whitish-floccose on the edges; spores ovoid, pointed, smooth, uniguttulate, 8–12 × 5–7 μ; cystidia flask-shaped, 40–45 μ long, 8–10 μ thick at the base; stipe slender, flexuous, hollow, smooth or slightly silky-fibrillose, downy or pruinose at the apex, with a white mycelioid tomentum at the base, whitish or pallid, varying to fuliginous, 2.5–5 cm. long, about 1 mm. thick; veil slight, evanescent.

TYPE LOCALITY: Germany.
HABITAT: Among mosses or grasses in shaded places.
DISTRIBUTION: Throughout temperate North America, and in the mountains of Mexico and Jamaica; also in Europe.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. 54: *pl. G, f. 15–21;* Batsch, Elench. Fung. *f. 96;* Cooke, Brit. Fungi *pl. 465* (*523*); Gill. Champ. Fr. *pl. 376* (*295*); Lucand, Champ. Fr. *pl. 61;* Pat. Tab. Fung. 1: *f. 230;* Ricken, Blätterp. Deutschl. *pl. 60, f. 8.*
EXSICCATI: Thüm. Fungi Austr. *803.*

6. Galerula capillaripes (Peck) Murrill.

Galera capillaripes Peck, Bull. Torrey Club 26: 66. 1899.

Pileus subcampanulate, obtuse, 4–6 mm. broad; surface ferruginous when moist, becoming paler or buff on drying, glabrous, hygrophanous, margin faintly striatulate when moist; lamellae

adnate, subdistant, rather broad, pale-ferruginous; spores 8–12 × 6–7 μ; stipe very slender, flexuous, glabrous, concolorous, 2–3 cm. long, less than 1 mm. thick.

TYPE LOCALITY: Ohio.
HABITAT: On lawns and grassy places.
DISTRIBUTION: New York to Michigan and south to Ohio and Missouri.

7. Galerula fragilis (Peck) Murrill.

Galera fragilis Peck, Bull. Torrey Club **24**: 144. 1897.

Pileus submembranous, very fragile, broadly campanulate, 6–10 mm. broad; surface glabrous, dull-flesh-colored; lamellae ascending, adnate, subdistant, dark-yellow or subochraceous, becoming ferruginous; spores ellipsoid, 10 × 5 μ; stipe slender, flexuous, hollow, 2–3 cm. long, 1 mm. thick.

TYPE LOCALITY: Rooks County, Kansas.
HABITAT: Among short grasses in pasture.
DISTRIBUTION: Known only from the type locality.

8. Galerula hemisphaerica Murrill, sp. nov.

Pileus hemispheric, not expanding, neither umbonate nor depressed, solitary, 1 cm. broad; surface smooth, dry, glabrous, isabelline, margin entire, concolorous, striate, straight and appressed when young; lamellae adnate, ventricose, subcrowded, ochraceous-ferruginous, becoming darker, whitish-pruinose on the edges; spores ellipsoid, smooth, ferruginous under the microscope, 8–9 × 4–5 μ; stipe tapering upward, slender, smooth, glabrous, white, 3 cm. long, 1–2 mm. thick.

Type collected in grass on a lawn at Lake Placid, Adirondack Mountains, New York, July 17–29, 1912, *W. A. & Edna L. Murrill 145* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

9. Galerula tenerella (Atk.) Murrill.

Galera tenerella Atk. Ann. Myc. **7**: 369. 1909.

Pileus thin, campanulate, gregarious, 3–4 mm. broad and high; surface smooth, ochraceous, with a whitish bloom; lamellae subelliptic, narrow, adnexed, concolorous, whitish on the edges; spores broadly ellipsoid, smooth, yellowish, 14–16 × 8–10 μ; stipe even, concolorous, pruinose at the apex, and over the entire length when young and fresh, 5–7 cm. long, 1–1.5 mm. thick.

TYPE LOCALITY: Ithaca, New York.
HABITAT: On manure in pots in a palm house.
DISTRIBUTION: Known only from the type locality.

10. Galerula plicatella (Peck) Murrill.

Agaricus coprinoides Peck, Bull. Buffalo Soc. Nat. Sci. **1**: 52. 1873. Not *A. coprinoides* Corda, 1837.
Agaricus plicatellus Peck, Ann. Rep. N. Y. State Mus. **29**: 66. 1878.
Galera coprinoides Sacc. Syll. Fung. **5**: 867. 1887.
Galera plicatella Earle, Torreya **3**: 136. 1903.

Pileus membranous, campanulate, soon expanded, about 12 mm. broad; surface yellowish or ochraceous-yellow, plicate, sulcate to the small, even disk, often split on the margin; lamellae narrow, crowded, rounded behind, concolorous; spores ellipsoid, 7–7.5 × 5 μ; stipe slender, equal, hollow, minutely hairy or pruinose, white, about 2.5 cm. long and 1 mm. thick.

TYPE LOCALITY: Sterling, New York.
HABITAT: On grassy ground.
DISTRIBUTION: New York.

11. Galerula rufipes (Peck) Murrill.

Galera rufipes Peck, Ann. Rep. N. Y. State Mus. **42**: 116 (20). 1889.

Pileus campanulate or convex, 1–1.5 cm. broad; surface hygrophanous, reddish-tawny and striatulate when moist, pale-ochraceous when dry, whitened on the margin by the remains of the white, fibrillose veil; lamellae broad, subdistant, emarginate, yellowish or subochraceous, slightly crenulate on the whitish edges; spores subochraceous, 6–7.5 × 4–5 μ; stipe slender,

hollow, slightly fibrillose below, pruinose at the apex, reddish-brown, about 2.5 cm. long and 1 mm. thick.

TYPE LOCALITY: North Elba, New York.
HABITAT: On mossy ground in woods.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. 42: *pl. 2, f. 11–15.*

12. Galerula lignicola Murrill, sp. nov.

Pileus thin, plane, with a very small, conic umbo, gregarious, 2 cm. broad; surface glabrous, dull-watery-isabelline, striate, margin entire, concolorous, brown in dried specimens; lamellae sinuate, narrow, crowded, fulvous, finely serrulate on the edges; spores ellipsoid, smooth, melleous under the microscope, 7 × 4–5 μ; stipe slender, subequal, smooth, glabrous, latericious, whitish-mycelioid at the base, 3 cm. long, 2 mm. thick.

Type collected on decayed coniferous wood at Lake Placid, Adirondack Mountains, New York, October 3–14, 1912, *W. A. & Edna L. Murrill 1043* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

13. Galerula reticulata (Peck) Murrill.

Galera reticulata Peck, Ann. Rep. N. Y. State Mus. 54: 150. 1901.

Pileus thin, fragile, hemispheric or campanulate, obtuse, 1–2.5 cm. broad; surface hygrophanous, cinnamon-colored when moist, creamy-yellow or buff when dry, rugosely reticulate; context white or whitish; lamellae narrow, crowded, ascending, yellowish, becoming bright-ferruginous; spores ellipsoid, ferruginous, 7.5 × 4–5 μ; stipe slender, equal, hollow, slightly pruinose, striate at the apex, white, 2.5–6.5 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Ithaca, New York.
HABITAT: On mossy ground.
DISTRIBUTION: Known only from the type locality.

14. Galerula Kellermani (Peck) Murrill.

Galera Kellermani Peck, Jour. Myc. 12: 148. 1906.

Pileus very thin, subovoid or subconic, soon becoming plane or nearly so, gregarious or subcespitose, 2–3 cm. broad; surface striatulate nearly to the center and watery-brown when moist, grayish-brown when dry, a little darker at the center, minutely granulose or mealy and often with a few scattered, floccose squamules when young, unpolished when mature; margin more or less wavy and persistently striate when dry, sometimes slightly appendiculate and appearing as though slightly notched by the projecting ends of the lamellae; context having a slight taste and a faint odor, like that of decaying wood; lamellae thin, crowded, adnate, delicate cinnamon-brown, becoming darker with age; spores brownish-ferruginous, with a faint pinkish tint in mass, 8–12 × 6–7 μ; stipe slender, equal or slightly tapering upward, finely striate, minutely scurfy or mealy, at least when young, hollow, white, 2.5–4 cm. long, 1–2 mm. thick.

TYPE LOCALITY: Columbus, Ohio.
HABITAT: On the ground in a greenhouse.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATIONS: Hard, Mushr. *f. 224, 225;* Jour. Myc. 12: *pl. 89.*

15. Galerula inculta (Peck) Murrill.

Galera inculta Peck, Ann. Rep. N. Y. State Mus. 41: 69. 1888.

Pileus thin, somewhat fragile, campanulate, becoming convex or nearly plane, obtuse or rarely with a small umbo, 1.2–2.5 cm. broad; surface hygrophanous, cinnamon-colored and striatulate when moist, buff-colored and granulate when dry, sometimes minutely pitted or corrugated, rarely rimose-squamulose; lamellae broad, subdistant, ventricose, adnexed, at first pallid, then pale-cinnamon, white and crenulate on the edges; spores subellipsoid, pointed at each end, brownish-ferruginous, 15–16 × 7.5 μ; stipe straight or subflexuous, hollow, brittle, slightly silky, reddish-brown, sometimes mealy or pruinose at the apex and white-villose at the base, 2.5–3.5 cm. long, 1–2 mm. thick.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: On damp ground under willows and alders.
DISTRIBUTION: New York.

16. Galerula teneroides (Peck) Murrill.

Agaricus teneroides Peck, Ann. Rep. N. Y. State Mus. **29**: 39. 1878.
Galera teneroides Sacc. Syll. Fung. **5**: 861. 1887.

Pileus thin, campanulate or expanded, gregarious, 1–2.5 cm. broad; surface hygrophanous, brownish-cinnamon when moist, paler when dry; lamellae narrow, crowded, yellowish-cinnamon; spores nearly ellipsoid, subluteous, 7.5–8.5 × 4–5 μ; stipe straight, slender, hollow, concolorous, 2.5–5 cm. long, about 1 mm. thick.

TYPE LOCALITY: Greig, New York.
HABITAT: On soil or manure in woods.
DISTRIBUTION: New York.

17. Galerula pulchra (Clements) Murrill.

Galera pulchra Clements, Bot. Surv. Neb. **4**: 22. 1896.

Pileus membranous, conic, broad, umbonate, 2.5 cm. broad; surface densely silky-tomentose, ochraceous or cream-colored, margin striate-sulcate to the center; lamellae adnexed, slightly crowded, linear, subcurved, ochraceous; spores nearly lemon-shaped, fulvous, 15–16 × 9–10 μ; stipe elongate, cartilaginous, attenuate, striate, pruinose, yellowish-white, hollow, 7–8 cm. long, 2 mm. thick.

TYPE LOCALITY: Otowanie Woods, Nebraska.
HABITAT: On rich, moist ground.
DISTRIBUTION: Known only from the type locality.

18. Galerula flava (Peck) Murrill.

Galera flava Peck, Ann. Rep. N. Y. State Mus. **45**: 79 (19). 1893.

Pileus membranous, ovoid or campanulate, obtuse, 1.2–2.5 cm. broad; surface moist or subhygrophanous, yellow, the pellicle sometimes cracking into squamules, margin plicate-striate; lamellae thin, narrow, crowded, adnate, at first whitish, becoming yellowish-cinnamon; spores ovoid or subellipsoid, brownish-ferruginous, 12.5 × 7.5 μ; stipe equal or slightly tapering upward, hollow, slightly striate at the apex, sprinkled with white, mealy particles, white or yellowish, 5–7.5 cm. long, 2–3 mm. thick.

TYPE LOCALITY: Freeville, Tompkins County, New York.
HABITAT: On damp vegetable mold in woods.
DISTRIBUTION: Known only from the type locality.

19. Galerula sulcatipes (Peck) Murrill.

Agaricus sulcatipes Peck, Ann. Rep. N. Y. State Mus. **35**: 132. 1884.
Galera sulcatipes Sacc. Syll. Fung. **5**: 866. 1887.

Pileus thin, ovoid, conic or subcampanulate, gregarious, 1–1.5 cm. broad; surface hygrophanous, chestnut-colored and mostly striatulate on the margin when moist, paler when dry; lamellae ascending, subdistant, adnate, whitish, becoming ferruginous-cinnamon; spores ellipsoid, ferruginous-cinnamon, 6–7.5 × 4 μ; stipe slender, straight or flexuous, equal, hollow, rather tenacious, striate-sulcate, silky, floccose-pruinose toward the base, white, 3.5–7.5 cm. long, about 2 mm. thick.

TYPE LOCALITY: East Berne, New York.
HABITAT: On a pile of buckwheat bran in woods.
DISTRIBUTION: Known only from the type locality.

20. Galerula tenera (Schaeff.) Murrill.

Agaricus tener Schaeff. Fung. Bavar. **4**: Ind. 31. 1774.
Galera tenera Quél. Champ. Jura Vosg. 104. 1872.
Conocybe tenera Fayod, Ann. Sci. Nat. VII. **9**: 357. 1899.
Galera cubensis Earle, Inform. An. Estaç. Centr. Agron. Cuba **1**: 237. 1906.

Pileus thin, conic to campanulate, 1–2 cm. broad and high; surface glabrous to slightly pubescent, tan or brownish, slightly darker at the center, hygrophanous, ochraceous when dry, margin striatulate when moist; lamellae adnexed, ascending, crowded, fulvous; spores ellipsoid, smooth, dark-ferruginous, 12–14 × 6–8 μ; cystidia flask-shaped, 10 μ at the base;

stipe slender, equal, subconcolorous, glabrous to slightly pubescent, hollow, fragile, 8–12 cm. long, 1–2 mm. thick.

TYPE LOCALITY: Bavaria.
HABITAT: On lawns and in manured pastures, rarely in woods.
DISTRIBUTION: Throughout temperate and tropical North America; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 461* (*518*); Hard, Mushr. *f. 223;* Ricken, Blätterp. Deutschl. *pl. 60, f. 10;* Schaeff. Fung. Bavar. *pl. 70, f. 6–8;* Sow. Engl. Fungi *pl. 33.*

21. Galerula sphagnorum (Pers.) Murrill.

Agaricus hypnorum sphagnorum Pers. Syn. Fung. 386. 1801.
Agaricus sphagnorum Lasch, Linnaea **3**: 417. 1828.
Galera sphagnorum Sacc. Syll. Fung. **5**: 869. 1887.
Conocybe sphagnorum Murrill, Mycologia **4**: 248. 1912.

Pileus thin, conic-convex or expanded, sometimes with a small umbo or papilla, 1.5–3 cm. broad; surface hygrophanous, tawny or subochraceous and usually striate on the margin when moist, pale-ochraceous or buff when dry; lamellae thin, subdistant, tawny-ochraceous; spores ellipsoid or subovoid, 10–12 $\times$ 6–8 μ; stipe slender, hollow, more or less fibrillose, subflexuous, concolorous, 8–15 cm. long, 2–4 mm. thick; veil quite evident at times.

TYPE LOCALITY: Europe.
HABITAT: In sphagnum marshes.
DISTRIBUTION: Northern United States and Canada; also in Europe.

22. Galerula crispa (Longyear) Murrill.

Agaricus lateritius Fries, Syst. Myc. **1**: 265. 1821. Not *A. lateritius* Schaeff. 1774.
Galera lateritia Quél. Champ. Jura Vosg. 337. 1873.
Galera crispa Longyear, Bot. Gaz. **28**: 272. 1899.
Galera simulans Earle, Inform. An. Estaç. Centr. Agron. Cuba **1**: 236. 1906.
Galera grisea Earle, Inform. An. Estaç. Centr. Agron. Cuba **1**: 237. 1906.

Pileus thin, narrowly conic or acorn-shaped, often becoming campanulate, 2–6 cm. broad; surface hygrophanous, isabelline to fulvous when moist, whitish or ochraceous when dry, margin finely striate; lamellae narrow or linear, crowded, ascending, nearly free, pale-cinnamon or tawny-ferruginous; spores ellipsoid, ferruginous, 12–14 $\times$ 8–10 μ; stipe straight, slender, fragile, hollow, minutely striate, sprinkled with minute, mealy particles or clothed with a minute villosity, white or yellowish, 8–10 cm. long, 2–3 mm. thick.

TYPE LOCALITY: Michigan.
HABITAT: On manure or rich cultivated or grassy ground.
DISTRIBUTION: Maine to Cuba and Jamaica and west to California; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 460* (*517*); Fries, Ic. Hymen. *pl. 127, f. 2;* Hard, Mushr. *f. 226;* Mycologia **3**: *pl. 40, f. 6.* (as *Conocybe tener*); Ricken, Blätterp. Deutschl. *pl. 60, f. 11.*

23. Galerula tortipes (Mont.) Murrill.

Agaricus tortipes Mont. Syll. Crypt. 119. 1856.
Galera tortipes Sacc. Syll. Fung. **5**: 867. 1887.

Pileus submembranous, convex, campanulate, 3.5–4 cm. broad; surface fulvous, margin striate, crenulate, splitting; lamellae adnexed, crowded, several times inserted, linear, fulvous to cinnamon, paler on the edges; spores ellipsoid, fulvous, 7–8 $\times$ 4–5 μ; stipe long, twisted, striate, fulvous, hollow, 15 cm. long, 5 mm. thick.

TYPE LOCALITY: Columbus, Ohio.
HABITAT: In woods.
DISTRIBUTION: Known only from the type locality.

24. Galerula striatula (Clements) Murrill.

Galera striatula Clements, Bot. Surv. Neb. **3**: 13. 1894.

Pileus membranous, campanulate, convex, 1.5–2 cm. broad; surface silky-atomaceous, soot-brown, strongly striate to the umbo, which is smooth, glabrous, brown; lamellae free, remote, affixed to a collar, narrow, ochraceous-rubiginous; spores ellipsoid, 12–15 $\times$ 7–8 μ; stipe elongate, equal, white, becoming rufescent, glabrous, 9–10 cm. long, 2 mm. thick.

TYPE LOCALITY: Lincoln, Nebraska.
HABITAT: On moist ground.
DISTRIBUTION: Known only from the type locality.

25. Galerula crocospora (Berk. & Curt.) Murrill.

Agaricus crocosporus Berk. & Curt. Ann. Mag. Nat. Hist. II. **12**: 421. 1853.
Galera crocospora Sacc. Syll. Fung. **5**: 866. 1887.

Pileus membranous, conic to convex, becoming depressed, gregarious, 2.5 cm. or more broad; surface sordid-brown, expallent, viscid, smooth on the disk, margin sulcate; lamellae adnate, numerous, pale-ferruginous, becoming saffron-yellow; spores large, ellipsoid, subcymbiform; stipe slender, white, silky-shining, fistulose, thickened at the base, 8–10 cm. long.

TYPE LOCALITY: South Carolina.
HABITAT: On a moist straw mat in a house.
DISTRIBUTION: Known only from the type locality.

26. Galerula lirata (Berk. & Curt.) Murrill.

Agaricus liratus Berk. & Curt. Proc. Am. Acad. **4**: 116. 1858.
Galera lirata Sacc. Syll. Fung. **5**: 865. 1887.

Pileus very small, umbilicate, resembling *Prunulus corticalis* in form and habit; surface reddish, granulate, sulcate; lamellae adnate, few, broad; stipe short, slender, cartilaginous.

TYPE LOCALITY: Mare Island, California.
HABITAT: On the bark of oak trees.
DISTRIBUTION: Known only from the type locality.

27. Galerula angusticeps (Peck) Murrill.

Galera angusticeps Peck, Bull. Torrey Club **24**: 143. 1897.
Conocybe angusticeps Murrill, Mycologia **4**: 248. 1912.

Pileus thin, narrowly and irregularly conic or subcylindric, obtuse, acute, or abruptly acuminate at the apex, 1.5–3 cm. long, 8–12 mm. wide; surface even, glabrous, viscid and dark-ochraceous when young and moist, nearly white when old and dry, margin somewhat incurved and appressed to the stipe; lamellae crowded, narrow, adnate, somewhat white-margined, more or less anastomosing, brownish-ferruginous when mature; spores ellipsoid, 10–12.5 × 7.5 μ; stipe slender, glabrous, hollow, equal or slightly thickened at the base, whitish or tinged with yellow, shining when dry, 3.5–7.5 cm. long, 2–3 mm. thick.

TYPE LOCALITY: Pasadena, California.
HABITAT: On grassy ground in streets and pastures.
DISTRIBUTION: California.

28. Galerula Martiana (Berk. & Curt.) Murrill.

Agaricus Martianus Berk. & Curt. Jour. Linn. Soc. **10**: 291. 1868.
Galera Martiana Sacc. Syll. Fung. **5**: 864. 1887.

Pileus thin, plane, umbonate, 6 mm. broad; surface glabrous, helvolous; lamellae free, broad, ventricose, pale-ferruginous; spores ochraceous; stipe slender, capillary, thicker above and below, 18 mm. long.

TYPE LOCALITY: Cuba.
HABITAT: On dead wood.
DISTRIBUTION: Cuba and Guadeloupe.

29. Galerula echinospora Murrill.

Conocybe echinospora Murrill, Mycologia **4**: 75. 1912.
Galera echinospora Murrill, Mycologia **4**: 332. 1912.

Pileus conic to campanulate or convex, umbonate, solitary, 5 mm. broad and high; surface glabrous, dry, striate, fulvous-isabelline, isabelline on the umbo, margin straight, appressed, entire; lamellae broad, distant, fulvous-isabelline; spores broadly ovoid, pointed at one end, minutely echinulate, ferruginous, 7–8 × 4–5 μ; stipe glabrous, smooth, slightly tapering upward, very pale latericeous, 1–1.5 cm. long, less than 1 mm. thick.

TYPE LOCALITY: Cinchona, Jamaica.
HABITAT: On a clay bank.
DISTRIBUTION: Known only from the type locality.

30. Galerula distantifolia Murrill, sp. nov.

Pileus small, thin, convex to plane or somewhat irregular, solitary, scarcely 1 cm. broad; surface smooth, glabrous, hygrophanous, uniformly fulvous, striate, margin entire, concolorous, straight and appressed when young, not incurved but slightly revolute on drying; lamellae adnate, broad, distant, pale-isabelline to somewhat darker; spores ellipsoid, smooth, 1–2-guttulate, pale-yellow under the microscope, 7–9 × 3.5–5 μ; stipe very short, subequal, smooth, pale-fulvous, glabrous above, tomentose at the base, 7–10 mm. long, 1 mm. thick.

Type collected on decayed wood in woods at Motzorongo, near Cordoba, Mexico, January 15, 1910, *W. A. & Edna L. Murrill 1043* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

31. Galerula macromastes (Fries) Murrill.

Agaricus macromastes Fries, Nova Acta Soc. Sci. Upsal. III. 1: 226. 1851.
Galera macromastes Sacc. Syll. Fung. 5: 866. 1887.

Pileus membranous to coriaceous, cylindric to conic, umbonate, 1–4 cm. high; surface very glabrous, pallid, margin straight, appressed to the stipe; lamellae crisped, free, discrete, sublinear, at first cohering; spores ochraceous-ferruginous; stipe glabrous, pallid, hollow, firm, conic to elongate, 3.5–4 cm. long, 6–12 mm. thick at the base, 4 mm. at the apex.

TYPE LOCALITY: Island of St. Thomas.
DISTRIBUTION: Known only from the type locality.

32. Galerula reflexa Murrill, sp. nov.

Pileus thin, becoming depressed at maturity, with the margin reflexed, solitary, 1.5 cm. broad; surface smooth, glabrous, slightly viscid, cream-colored, margin concolorous, not striate, becoming undulate or slightly lacerate with age; lamellae adnate, ventricose, fulvous at the maturity of the spores, entire and concolorous on the edges; spores ovoid, smooth, granular, yellow under the microscope, 8–9 × 5–6 μ; stipe slender, subequal, smooth, glabrous, pale-yellow above, slightly reddish-brown below, 3 cm. long, 1.5 mm. thick.

Type collected on the ground in humus in the Tepeite Valley, near Cuernavaca, Mexico, December 28, 1909, *W. A. & Edna L. Murrill 488* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

33. Galerula mexicana Murrill, sp. nov.

Pileus subhemispheric, not umbonate, solitary, 3 cm. broad; surface smooth, moist, glabrous, uniformly ochroleucous, margin entire, concolorous, not striate; lamellae adnexed, broad, subcrowded, isabelline, becoming darker at maturity, whitish and slightly crenulate on the edges; spores ellipsoid, smooth, ferruginous under the microscope, usually 1–2-guttulate, 12–15 × 7–9 μ; stipe erect, perfectly equal, tough, fistulose, stramineous, 11 cm. long, 3 mm. thick.

Type collected in grass by the roadside at Jalapa, Mexico, 1,500 m. elevation, December 12–20, 1909, *W. A. & Edna L. Murrill 139* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

DOUBTFUL AND EXCLUDED SPECIES

Agaricus flocculentus? Fries, Nova Acta Soc. Sci. Upsal. III. 1: 24. 1851. Collected and figured by Oersted in Costa Rica. There can be little doubt that this is referable to *Galerula tenera* or *G. crispa*. The species referred to in Epicr. Myc. 209 is *Galera frustulenta*, now placed in *Psathyra*.

Galera antipoda (Lasch) Quél. Champ. Jura Vosg. 104. 1872. (*Agaricus antipus* Lasch, Linnaea 3: 415. 1828.) Reported from Michigan by Kauffman, as occurring there on manure heaps. It is recognized by its radicate stipe.

Gàlera aquatilis (Fries) P. Karst. Bidr. Finl. Nat. Folk 32: 442. 1879. (*Agaricus hypnorum aquatilis* Fries, Syst. Myc. 1: 267. 1821. *Agaricus aquatilis* Fries, Epicr. Myc. 208. 1838.) Reported from the Catskill Mountains, New York, by Peck, but these specimens appear to be a form of *Galerula Hypni*.

Galera mniophila (Lasch) P. Karst. Bidr. Finl. Nat. Folk **32**: 441. 1879. (*Agaricus mniophila* Lasch, Linnaea **3**: 417. 1828.) Reported from Greenland by Rostrup. This species seems very near *Galera bryophila* Peck, which I have included in *Galerula Hypni*, although it is in some ways intermediate between *G. Hypni* and *G. sphagnorum.*

Galera ovalis (Fries) Gill. Champ. Fr. 554. 1876. (*Agaricus ovalis* Fries, Monog. Hymen. Suec. **1**: 389. 1857.) Reported from many parts of the United States, but probably confused with forms of *G. tenera* and *G. lateritia.* Peck says it is evidently rare, since he found it only once.

Galera pubescens Gill. Champ. Fr. 553. 1876. Reported from Michigan by Kauffman. Gillet's figures do not seem so different from what we have called *G. crispa,* with the exception of the conspicuous pubescence. Both *G. crispa* and *G. tenera* have finely pubescent forms.

Galera rubiginosa (Pers.) P. Karst. Bidr. Finl. Nat. Folk **32**: 440. 1879. (*Agaricus rubiginosus* Pers. Syn. Fung. 385. 1801.) Reported from North Carolina by Schweinitz, but he may have confused it with *G. tenera.*

Galera semilanceata Peck, Bull. Torrey Club **23**: 415. 1896. Described from specimens collected by Yeomans among mosses, etc., at Camas, Washington. The types at Albany are somewhat broken and rather difficult to compare, but the description agrees very closely with that of *G. Hypni.*

Galera siliginea (Fries) Quél. Champ. Jura Vosg. 104. 1872. (*Agaricus siligineus* Fries, Obs. Myc. **2**: 168. 1818.) Reported from Ohio. The species resembles *G. crispa,* but has a shorter stipe.

67. NAUCORIA (Fries) Quél. Champ. Jura Vosg. 99. 1872.

Agaricus § *Naucoria* Fries, Syst. Myc. **1**: 260. 1821.
Bulla Batt. (Fung. Hist. 57, hyponym. 1755); Earle, Bull. N. Y. Bot. Gard. **5**: 424. 1909.
Flammulaster Earle, Bull. N. Y. Bot. Gard. **5**: 435. 1909.

Pileus fleshy, putrescent, glabrous, silky, or squamulose, the margin incurved when young; lamellae adnate or adnexed; spores ochraceous, ferruginous, or fulvous; stipe central, slender, tubular, cartilaginous; veil rarely present in young stages but disappearing without forming an annulus.

Type species, *Naucoria melinoides* (Bull.) Quél.

I. SPECIES OCCURRING IN TEMPERATE NORTH AMERICA, EXCEPT THOSE CONFINED TO THE PACIFIC COAST

Pileus livid-yellowish-green.	1. *N. centuncula.*
Pileus dingy-ocher or subolivaceous, brown or blackish-brown on the disk.	2. *N. lenticeps.*
Pileus livid or grayish-brown.	3. *N. elatior.*
Pileus reddish-yellow, varying at times to pale-yellow.	
Stipe short, 2–3 cm. long.	4. *N. arenaria.*
Stipe long, reaching 7.5 cm. long.	5. *N. curvomarginata.*
Pileus variable in color, blood-red, cinnamon, and rusty-red, becoming black on drying, sharply conic.	6. *N. Christinae.*
Pileus bay, latericious, or reddish-brown.	
Pileus 4–10 mm. broad, bay.	7. *N. triscopoda.*
Pileus 1–1.5 cm. broad, latericious.	8. *N. lateritia.*
Pileus 2.5–4 cm. broad, reddish-brown.	9. *N. discomorbida.*
Pileus yellowish, isabelline, ferruginous, fulvous, or yellowish-brown.	
Pileus 1–2.5 cm. broad.	
Surface glabrous.	
Stipe 2.5 cm. long.	10. *N. unicolor.*
Stipe 2.5–5 cm. long.	
Species occurring on the ground in pastures.	11. *N. pascuensis.*
Species occurring on the ground in pine woods.	12. *N. subfulva.*
Species occurring on dead wood.	13. *N. praecox.*
Stipe 7–12 cm. long.	
Spores 5–6 μ long.	14. *N. scorpioides.*
Spores 12–17 μ long.	
Pileus cremeous.	15. *N. humidicola.*
Pileus ferruginous.	16. *N. temulenta.*
Surface floccose or squamulose, sometimes becoming glabrous with age.	
Species occurring on mud.	17. *N. siparioides.*
Species occurring in sphagnum.	18. *N. sphagnophila.*
Species occurring on dead wood or dead herbaceous stems.	
Stipe 1 mm. thick.	19. *N. scirpicola.*

Stipe 2–3 mm. thick.
Stipe brownish, solid. — 20. *N. Curcuma.*
Stipe isabelline, hollow. — 21. *N. pennsylvanica.*
Pileus 2.5–5 cm. broad.
Surface glabrous.
Stipe 2–5 mm. thick.
Context decidedly bitter, becoming farinaceous. — 22. *N. amara.*
Context not bitter. — 23. *N. semiorbicularis.*
Stipe 13–15 mm. thick. — 24. *N. striata.*
Surface decorated with appressed, clay-brown scales. — 25. *N. paludosella.*
Pileus 5–10 cm. broad.
Stipe white. — 26. *N. argillosa.*
Stipe pale-tawny. — 27. *N. sororia.*
Pileus umbrinous, brown, or blackish-brown, at least when moist, often paler on drying, mostly 1–2 cm. broad.
Surface velvety-tomentose. — 28. *N. velutina.*
Surface glabrous or nearly so.
Species occurring on the ground in woods; pileus reaching 3.5 cm. broad. — 29. *N. pruinatipes.*
Species occurring in swamps or marshy ground; pileus reaching 2.5 cm. broad. — 30. *N. pallidomarginata.*
Species occurring on dead wood in woods.
Stipe reaching 2–2.5 cm. long.
Pileus 1 cm. broad. — 31. *N. umbriniceps.*
Pileus 2–2.5 cm. broad. — 32. *N. serrulata.*
Stipe reaching 5 cm. long.
Pileus umbonate, margin striate. — 33. *N. lignicola.*
Pileus not as above. — 34. *N. firma.*

II. SPECIES OCCURRING ON THE PACIFIC COAST

Pileus whitish, tinged with yellow when young; spores very large, 15 × 12.5 μ. — 35. *N. platysperma.*
Pileus cream-colored or isabelline, rarely darker on the margin.
Pileus 1–1.5 cm. broad.
Surface finely whitish-pubescent. — 36. *N. pubescens.*
Surface glabrous.
Pileus not umbonate. — 37. *N. tubariiformis.*
Pileus conspicuously umbonate. — 38. *N. mammillata.*
Pileus 2–3.5 cm. broad.
Stipe 1–1.5 cm. long. — 39. *N. caespitosa.*
Stipe 3–5 cm. long.
Margin of pileus brown. — 40. *N. brunneimarginata.*
Margin of pileus concolorous, isabelline.
Margin of pileus striate. — 41. *N. Harperi.*
Margin of pileus not striate. — 42. *N. Pattersonae.*
Stipe 6–8 cm. long. — 43. *N. washingtonensis.*
Pileus fulvous or ferruginous, sometimes fading with age or on drying.
Surface hispid-squamulose, pale-fulvous. — 21. *N. pennsylvanica.*
Surface glabrous.
Stipe 1.5–2 cm. long. — 44. *N. californica.*
Stipe 4–9 cm. long.
Pileus umbonate; stipe long-radicate. — 45. *N. radicata.*
Pileus not umbonate; stipe not radicate. — 23. *N. semiorbicularis.*
Pileus brown and striatulate when moist, buff-yellow when dry. — 30. *N. pallidomarginata.*
Pileus bay or wine-colored.
Surface glabrous.
Pileus bay. — 46. *N. sphagnorum.*
Pileus wine-colored. — 47. *N. vinicolor.*
Surface hispid-squamulose. — 48. *N. badia.*

III. SPECIES OCCURRING IN TROPICAL NORTH AMERICA

Pileus white or whitish.
Surface glabrous.
Pileus convex, 1 cm. broad. — 49. *N. tepeitensis.*
Pileus umbonate, 2.5 cm. broad. — 50. *N. jalapensis.*
Surface papulose; pileus 2.5–5 cm. broad. — 51. *N. papularis.*
Pileus dull-olivaceous, 1 cm. broad. — 52. *N. subolivacea.*
Pileus testaceous with bay umbo, 7 mm. broad. — 53. *N. pellucida.*
Pileus vinosous, 6–8 mm. broad. — 54. *N. oinodes.*
Pileus ochraceous, isabelline, or fulvous, sometimes differently colored on the disk.
Pileus 0.7–1.5 cm. broad.
Surface glabrous. — 55. *N. hepaticicola.*
Surface innate-fibrillose.
Lamellae pale-ochraceous at maturity. — 56. *N. cyathicola.*
Lamellae bay-fulvous at maturity. — 57. *N. corticola.*
Surface hispid-squamulose. — 58. *N. mexicana.*
Pileus 2–5 cm. broad.

Stipe 2–2.5 cm. long; sometimes longer in *N. subpectinata*.	
Pileus ochraceous with subfulvous disk.	59. *N. xuchilensis.*
Pileus isabelline with testaceous disk.	60. *N. spinulifer.*
Pileus fulvous.	61. *N. subpectinata.*
Stipe 3–4 cm. long.	62. *N. Earlei.*
Stipe 4–8 cm. long.	23. *N. semiorbicularis.*
Pileus some shade of umbrinous or brown, glabrous, about 1–2 cm. broad.	
Stipe 1–2 mm. thick.	
Pileus umbonate, striate.	63. *N. montana.*
Pileus neither umbonate nor striate.	64. *N. Sacchari.*
Stipe 3 mm. thick.	65. *N. Underwoodii.*

1. **Naucoria centuncula** (Fries) Gill. Champ. Fr. 545. 1876.

Agaricus centunculus Fries, Syst. Myc. **1**: 262. 1821.

Pileus subfleshy, convex-plane, obtuse, 16–22 mm. broad; surface lurid-yellowish-green to expallent, subsilky, the margin yellow-pulverulent; lamellae seceding, broad, thick, yellow-floccose on the edges, cinereo-flavid; spores ochraceous; stipe often curved and subeccentric, fistulose, white-pulverulent at the apex, white-villose at the base, 2.5 cm. long, 2.5 mm. thick.

TYPE LOCALITY: Europe.
HABITAT: On dead wood.
DISTRIBUTION: Michigan and Nebraska; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 601a* (*495*).

2. **Naucoria lenticeps** (Peck) Sacc. Syll. Fung. **5**: 838. 1887.

Agaricus lenticeps Peck, Ann. Rep. N. Y. State Mus. **31**: 34. 1879.

Pileus thin, convex or nearly plane, 1.2–2 cm. broad; surface dingy-ocher or subolivaceous, brown or blackish-brown on the disk; lamellae plane, subdistant, adnate, with a decurrent tooth, whitish or pallid; spores large, variable in size, 12.5–18 × 7.5–10 μ; stipe slender, hollow, paler and slightly squamulose at the apex, 2.5–3.5 cm. long, scarcely 2 mm. thick.

TYPE LOCALITY: Center, New York.
HABITAT: In sandy soil along railroads.
DISTRIBUTION: Known only from the type locality.

3. **Naucoria elatior** (Peck) Sacc. Syll. Fung. **9**: 109. 1891.

Agaricus elatior Peck, Ann. Rep. N. Y. State Mus. **39**: 41. 1887.

Pileus thin, at first conic or subcampanulate, becoming convex or nearly plane, 1–2 cm. broad; surface glabrous, slightly viscid and striatulate on the margin when moist, livid or grayish-brown; lamellae broad, ventricose, distant, whitish or livid, becoming dark-ferruginous, white on the edges; spores brownish-ferruginous, oblong-ellipsoid, 17–20 × 7.5–10 μ; stipe elongate, slender, hollow, flexuous, slightly fibrillose, pallid, 7.5–12.5 cm. long, about 2 mm. thick.

TYPE LOCALITY: Karner, New York.
HABITAT: In sphagnum.
DISTRIBUTION: Known only from the type locality.

4. **Naucoria arenaria** Peck, Bull. N. Y. State Mus. 157: 29. 1912.

Pileus thin, convex or nearly plane, 0.75–2 cm. broad; surface glabrous, pale-yellow or reddish-yellow with a paler margin; lamellae broad, distant, unequal, sinuate, brownish-ferruginous; spores brownish-ferruginous, 15–20 × 10–12 μ; stipe slender, rigid, glabrous, stuffed with a white pith, concolorous, pseudobulbous, 2–3 cm. long, 1–2 mm. thick.

TYPE LOCALITY: Karner, New York.
HABITAT: In sandy soil.
DISTRIBUTION: Known only from the type locality.

5. **Naucoria curvomarginata** (Peck) Sacc. Syll. Fung. **5**: 842. 1887.

Agaricus curvomarginatus Peck, Ann. Rep. N. Y. State Cab. **23**: 92. 1872.

Pileus thin, convex, 8–12 mm. broad; surface smooth, reddish-yellow, margin paler, reflexed, extending beyond the lamellae; lamellae subventricose, emarginate, decurrent-toothed,

pale-yellow or whitish, with a flesh-colored tint; stipe equal, solid, wavy, with a whitish, silky luster, 2.5–7.5 cm. long.

TYPE LOCALITY: North Elba, New York.
HABITAT: In mossy places in woods.
DISTRIBUTION: New York.
ILLUSTRATIONS: Ann. Rep. N. Y. State Cab. 23: *pl. 2, f. 1–5.*

6. Naucoria Christinae (Fries) Sacc. Syll. Fung. 5: 829. 1887.

Agaricus Christinae Fries, Epicr. Myc. 192. 1838.

Pileus fleshy, thin, acutely conic when young, very broadly conic with a sharp umbo when mature, gregarious, becoming black throughout on drying, 2–3 cm. broad; surface somewhat hygrophanous, viscid, smooth, but under a lens marked with fine, close, radiating lines, variable in color, blood-red, cinnamon, and rusty-red, margin somewhat repand as if lobed, becoming revolute with age, faintly striate when moist; context thin, concolorous; lamellae free or slightly adnexed, receding, crowded, pallid, becoming bright-saffron-yellow, somewhat spotted; spores pip-shaped, pale-yellow, 10–12 × 5 μ; stipe cylindric, radicate, glabrous, fistulose, cartilaginous, very tough, 6–10 cm. long, 3–6 mm. thick.

TYPE LOCALITY: Europe.
HABITAT: On the ground in woods.
DISTRIBUTION: New England; also in Europe.
ILLUSTRATION: Fries, Ic. Hymen. *pl. 121, f. 1.*

7. Naucoria triscopoda (Fries) Sacc. Syll. Fung. 5: 841. 1887.

Agaricus triscopus Fries, Monog. Hymen. Suec. 1: 375. 1857.

Pileus subfleshy, conic-hemispheric, obtuse, becoming convex-plane, umbonate, 4–10 mm. broad; surface glabrous, bay, becoming ochraceous on drying; lamellae adnate, subcrowded, thin, plane, dark-ferruginous; spores dark-ferruginous, 6–8 × 3–4 μ; stipe filiform, curved or bent, equal, glabrous, opaque, hollow, stuffed to slightly fistulose, ferruginous, umbrinous at the base, 2.5 cm. long.

TYPE LOCALITY: Sweden.
HABITAT: On dead deciduous wood.
DISTRIBUTION: New York and Michigan; also in Europe.
ILLUSTRATION: Fries, Ic. Hymen. *pl. 124, f. 3.*

8. Naucoria lateritia Murrill, sp. nov.

Pileus conic to campanulate, not fully expanding, with a prominent umbo, gregarious, 1–1.5 cm. broad; surface hygrophanous, striate when fresh, glabrous, latericious, fading in herbarium specimens, margin entire, concolorous; lamellae sinuate, ventricose, subdistant, entire and concolorous on the edges; spores ellipsoid, smooth, pale-yellow under the microscope, 7 × 3–4 μ; stipe subequal, rather slender, cartilaginous, smooth, glabrous, bay, 3 cm. long, 1.5 mm. thick.

Type collected on dead wood by the roadside in woods at Lake Placid, Adirondack Mountains, New York, October 3–14, 1912, *W. A. & Edna L. Murrill 559* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

9. Naucoria discomorbida (Peck) Sacc. Syll. Fung. 5: 842. 1887.

Agaricus discomorbidus Peck, Ann. Rep. N. Y. State Mus. 26: 58. 1874.

Pileus thin, convex or expanded, 2.5–4 cm. broad; surface glabrous, subviscid, reddish-brown or dull-chestnut; context white; lamellae crowded, narrow, white or pallid to brownish, serrulate on the edges; spores nucleate, 10 × 6 μ; stipe equal, white, stuffed, glabrous, subpruinose at the apex, 5–8 cm. long, 2–5 mm. thick.

TYPE LOCALITY: Croghan, New York.
HABITAT: On the ground in woods.
DISTRIBUTION: Eastern Canada, northern New York, and Connecticut.

10. Naucoria unicolor Peck, Ann. Rep. N. Y. State Mus. 41: 68. 1888.

Pileus thin, broadly convex, plane or slightly depressed, 1.2–2 cm. broad; surface glabrous, hygrophanous, yellowish-brown when moist, paler when dry, margin striatulate when moist;

lamellae thin, crowded, slightly rounded behind, concolorous; spores broadly ellipsoid, brownish-ferruginous, 6–7.5 × 5 μ; stipe equal, tough, hollow, glabrous, concolorous, with white mycelium at the base, 2.5 cm. long, 1–2 mm. thick.

TYPE LOCALITY: Selkirk, New York.
HABITAT: On decayed wood and old stumps of deciduous trees.
DISTRIBUTION: New York.

11. Naucoria pascuensis Murrill, sp. nov.

Pileus convex, 8–10 mm. broad; surface ochraceous, viscid, margin not striate; lamellae adnexed, subdistant, broad, ventricose, dark-fuscous; spores broadly ellipsoid, 10–12 × 8–10 μ; stipe cylindric, subglabrous but with scattered fibrils, subconcolorous, hollow, 3–4 cm. long, 1 mm. thick.

Type collected in an upland Bermuda grass pasture, red clay land, at Auburn, Alabama, October 14, 1900, *F. S. Earle* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: South Carolina to Alabama.
EXSICCATI: Rav. Fungi Am. *102* (as *A. subglobosus*).

12. Naucoria subfulva Murrill.

Agaricus fulvus Peck, Ann. Rep. N. Y. State Cab. **23**: 92. 1872. Not *A. fulvus* Schaeff. 1774.
Naucoria fulva Sacc. Syll. Fung. **5**: 838. 1887.

Pileus thin, convex, becoming expanded, umbonate, 8–16 mm. broad; surface tawny-yellow, darker when moist; lamellae broad, emarginate, decurrent-toothed, cinnamon-colored; stipe equal, solid, subflexuous, a little paler than the pileus, 2.5–3.5 cm. long.

TYPE LOCALITY: Bethlehem, New York.
HABITAT: On the ground in pine woods.
DISTRIBUTION: New York.

13. Naucoria praecox Murrill.

Agaricus vernalis Peck, Ann. Rep. N. Y. State Cab. **23**: 91. 1872. Not *A. vernalis* Bolt. 1788.
Naucoria vernalis Sacc. Syll. Fung. **5**: 838. 1887.

Pileus thin, fleshy, convex, becoming a little depressed, umbonate, 1.2–2.5 cm. broad; surface hygrophanous, dull-yellow, darker when moist, margin deflexed; lamellae narrow, attached, cinnamon-colored; stipe rather long, flexuous, striate-sulcate, hollow, tapering downward, white-villose at the base, brownish, 4–5 cm. long, 2 mm. thick.

TYPE LOCALITY: North Greenbush, New York.
HABITAT: On rotten wood.
DISTRIBUTION: Northern New York.
ILLUSTRATION: Atk. Stud. Am. Fungi ed. 1. *f. 146;* ed. 2. *f. 150.*

14. Naucoria scorpioides (Fries) P. Karst. Bidr. Finl. Nat. Folk 32: 431. 1879.

Agaricus scorpioides Fries, Epicr. Myc. 199. 1838.

Pileus thin, somewhat fleshy, conic-convex to expanded, becoming depressed about the umbo, 1–1.5 cm. broad; surface subtestaceous, alutaceous, or isabelline, expallent, glabrous, scarcely viscid; lamellae adnate with a decurrent tooth, pallid to darker, concolorous and entire on the edges; spores 5–6 μ long; stipe slender, flexuous, dry, pallid, hollow, white-fibrillose, pruinose at the apex, 7–12 cm. long.

TYPE LOCALITY: Europe.
HABITAT: Among mosses in woods.
DISTRIBUTION: Adirondack Mountains, New York; also in Europe.

15. Naucoria humidicola Murrill, sp. nov.

Pileus convex, not expanding, sometimes slightly umbonate, gregarious, 1–2 cm. broad; surface smooth, glabrous, hygrophanous, not striate, uniformly cremeous to pale-isabelline, margin entire, concolorous; lamellae adnate to sinuate, sometimes rounded behind, plane, rather distant, pale-yellowish, darker at maturity; spores ellipsoid, smooth, melleous under the microscope, 13–17 × 6–8 μ; stipe slender, equal, straight, snapping readily, concolorous

to pale-bay, usually paler at the apex, whitish-fibrillose to subglabrous, about 7 cm. long and 2 mm. thick.

Type collected in wet, mossy, open ground at Lake Placid, Adirondack Mountains, New York, October 3–14, 1912, *W. A. & Edna L. Murrill 1019* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Vicinity of Lake Placid, Adirondack Mountains, New York.

16. **Naucoria temulenta** (Fries) Gill. Champ. Fr. 547. 1876.

Agaricus temulentus Fries, Syst. Myc. 1: 268. 1821.

Pileus submembranous, somewhat fleshy on the disk, campanulate to convex, broadly subumbonate, 1–2.5 cm. broad; surface glabrous, hygrophanous, ferruginous, becoming ochraceous-alutaceous on drying, margin striatulate when moist, becoming even when dry; lamellae adnate, subdistant, narrowed in front, lurid to umbrinous-ferruginous; spores 12 × 6 μ; stipe thin, tough, flexuous, polished, glabrous, whitish or ferruginous, spongy-stuffed, pulverulent at the apex, fibrillose at the base, 7–8 cm. long, 2–3 mm. thick.

TYPE LOCALITY: Europe.
HABITAT: Rich soil in woods or swamps.
DISTRIBUTION: Northern New York; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 459 (509)*; Fries, Ic. Hymen. *pl. 125, f. 2.*

17. **Naucoria siparioides** (Berk. & Curt.) Sacc. Syll. Fung. 5: 852. 1887.

Agaricus siparioides Berk. & Curt. Ann. Mag. Nat. Hist. III. 4: 291. 1859.

Pileus hemispheric, 12–18 mm. broad; surface minutely and thickly squamulose-verrucose, yellowish-brown; context thin, brittle; lamellae at first attached but soon separating, plane, distant, broad, denticulate on the edges; spores subellipsoid, 6 μ long; stipe brown, fibrillose, fistulose, abruptly swollen and covered with a dull-pale-yellowish down at the base, 2.5 cm. long, less than 2 mm. thick.

TYPE LOCALITY: New England.
HABITAT: On the mud of an exsiccated swamp.
DISTRIBUTION: Known only from the type locality.

18. **Naucoria sphagnophila** Peck, Bull. N. Y. State Mus. 139: 45. 1910.

Pileus thin, convex, becoming nearly plane, gregarious, 1.2–2.5 cm. broad; surface minutely appressed-tomentose and sometimes floccose-squamulose, hygrophanous, tinged with flesh-color when young or moist, becoming buff-white on drying, grayish-ochraceous or rusty-brown when mature; lamellae thin, narrow, subsinuate, crowded, unequal, uneven on the edges, yellowish, becoming ferruginous; spores ellipsoid, 8–9 × 4–5 μ; stipe equal, flexuous, solid or at length hollow, yellowish with a slight floccose tomentum at the apex, white-tomentose at the base, 2.5–4.5 cm. long, 2–3 mm. thick.

TYPE LOCALITY: Stow, Massachusetts.
HABITAT: In sphagnum in a swamp.
DISTRIBUTION: Vicinity of Stow, Massachusetts.

19. **Naucoria scirpicola** Peck, Ann. Rep. N. Y. State Mus. 42: 115 (19). 1889.

Pileus membranous, at first hemispheric, becoming convex or nearly plane, 1.2–2 cm. broad; surface glabrous or adorned with a few floccose, superficial scales, tawny or subochraceous, subgranulate when dry, margin widely striate; lamellae subdistant, slightly adnexed, nearly concolorous; spores ellipsoid, 10–12.5 × 7.5 μ; stipe slender, white, flocculose toward the base, attached to the matrix by white, tomentose filaments, 1.5–2.5 cm. long, 1 mm. thick.

TYPE LOCALITY: Patchogue, New York.
HABITAT: At the base of stems of *Scirpus validus.*
DISTRIBUTION: Known only from the type locality.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. 42: *pl. 2, f. 6–10.*

20. Naucoria Curcuma (Berk. & Curt.) Sacc. Syll. Fung. 5: 854. 1887.

Agaricus Curcuma Berk. & Curt. Ann. Mag. Nat. Hist. II. 12: 421. 1853.

Pileus hemispheric, 2 cm. broad; surface densely covered with squamose fascicles of flocci, dark-brownish-yellow; context thin, yellow; lamellae emarginate, slightly attached, broad, ventricose, dark-ochraceous; stipe solid, brown, fibrillose, dilated at the base, 2.5–4 cm. long, 2 mm. thick; mycelium tawny.

TYPE LOCALITY: South Carolina.
HABITAT: On an old stump.
DISTRIBUTION: Known only from the type locality.

21. Naucoria pennsylvanica (Berk. & Curt.) Sacc. Syll. Fung. 5: 854. 1887.

Agaricus pennsylvanicus Berk. & Curt. Ann. Mag. Nat. Hist. III. 4: 291. 1859.

Pileus globose to hemispheric, subcespitose, 1–2.5 cm. broad; surface dry, hispid-squamulose, pale-fulvous, margin incurved, slightly appendiculate in early stages; lamellae squarely adnate, broad, ferruginous-fulvous; spores ellipsoid, often plane or concave on one side, smooth, deep-ferruginous, 7×4–$5\ \mu$; stipe curved, tapering upward, hollow, cartilaginous, paler than the pileus, with whitish tomentum, especially near the base, 2–3 cm. long, about 3 mm. thick; veil slight, arachnoid, disappearing at a very early stage.

TYPE LOCALITY: Pennsylvania.
HABITAT: On dead wood in low, shaded positions.
DISTRIBUTION: New England to North Carolina and west to Washington.
ILLUSTRATION: Mycologia 3: *pl. 40, f. 10.*

22. Naucoria amara Murrill, sp. nov.

Pileus convex to subexpanded, not umbonate, gregarious, 3–4 cm. broad; surface moist, glabrous, somewhat uneven, ochroleucous to isabelline, with a darker zone near the margin, which is not striate and only slightly inflexed when young; context thin, whitish, with the taste decidedly bitter at first, becoming farinaceous, and the odor farinaceous; lamellae slightly sinuate, crowded, plane, rather narrow, whitish to fulvous, very thin, entire and concolorous on the edges; spores broadly ovoid, smooth, melleous under the microscope, 10–12×6–$7\ \mu$; stipe irregular and variable in shape and size, smooth, glabrous, white, shining, hollow, averaging about 5 cm. long and 5 mm. thick.

Type collected on a manure pile under trees in the New York Botanical Garden, July 2, 1915, *W. A. Murrill* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

23. Naucoria semiorbicularis (Bull.) Quél. Champ. Jura Vosg. 100. 1872.

Agaricus semiorbicularis Bull. Champ. Fr. *pl. 422, f. 1.* 1788.
Agaricus pediades Fries, Syst. Myc. 1: 290. 1821.
Naucoria pediades Quél. Champ. Jura Vosg. 100. 1872.

Pileus hemispheric to convex or rarely plane, gregarious, 2–5 cm. broad; surface glabrous, smooth, often cracking with age, slightly viscid when wet, tawny or ferruginous to paler; lamellae adnate or adnexed, broad, crowded, ochraceous to dark-brown; spores ellipsoid, smooth, ferruginous-melleous under the microscope, brownish in mass, 10–15×5–$9\ \mu$; stipe slightly enlarged at the base, rather tough, stuffed, glabrous, yellowish-brown or reddish-brown, 4–8 cm. long, 2–5 mm. thick.

TYPE LOCALITY: France.
HABITAT: On lawns and in pastures and along roads and paths, often on old manure.
DISTRIBUTION: Throughout temperate and tropical North America; also in Europe.
ILLUSTRATIONS: Cooke Brit. Fung *pl. 479 (506)* (as *A. arvalis*), *pl. 492 (505), 493a (507);* Gill. Champ. Fr. *pl. 371 (488), 372 (489);* Mycologia 3: *pl. 40, f. 2;* Pat. Tab. Fung. *f. 346.*
EXSICCATI: Barth. Fungi Columb. *2641;* Ellis & Ev. N. Am. Fungi *2802;* Herpell, Präp. Hutpilze *84;* Krieger, Fungi Sax. *323;* Rav. Fungi Am. *2;* Roum. Fungi Gall. *1001, 3401;* Fungi Sel. *4802;* Sydow, Myc. Mar. *2503, 2724;* Thüm. Fungi Austr. *606;* Myc. Univ. *802, 802b;* Underw. & Cook, Illust. Fungi *3.*

24. **Naucoria striata** Clements & Shear; Clements, Bot. Surv. Neb. 5: 10. 1901.

Pileus carnose, convex, at length explanate or repand, gregarious, 3–6 cm. broad; surface glabrous, glutinous, ochroleucous, paler toward the margin; lamellae free, somewhat crowded, ventricose, at first pale-umber, becoming ferruginous; spores ovoid, smooth, ferruginous, 7–8 × 5 μ; stipe broad, equal or subincrassate at the base, sometimes compressed, solid or medullate with age, fibrous, beautifully lineate from the apex to the middle, silky-fibrillose or squamose, shining at the apex, pale-cremeous, fuscescent at the base, 4–7 cm. long, 13–15 mm. thick.

TYPE LOCALITY: Lincoln, Nebraska.
HABITAT: On rich ground.
DISTRIBUTION: Known only from the type locality.

25. **Naucoria paludosella** Atk. Jour. Myc. 12: 193. 1906.

Pileus convex to expanded, somewhat depressed when old, 2.5–3 cm. broad; surface viscid when moist, clay-colored, darker at the center, often covered with darker, appressed, clay-brown scales; lamellae emarginate, adnate, sometimes with a decurrent tooth, easily becoming free, raw-umber to Mars-brown; spores subovoid to subellipsoid, smooth, fuscous-ferruginous, dull-ochraceous under a microscope, 9 × 4–5 μ; stipe cartilaginous, floccose, concolorous, but paler, at length hollow, bulbous and covered with a whitish mycelium at the base, 6–8 cm. long, 3–4 mm. thick; veil rather thick, floccose, disappearing, leaving remnants on the stipe and margin of the pileus when fresh.

TYPE LOCALITY: Buckeye Lake, Ohio.
HABITAT: On living sphagnum and other mosses and on rotten wood.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATIONS: Hard, Mushr. *f. 229;* Jour. Myc. 12: *pl. 91.*

26. **Naucoria argillosa** (Berk. & Curt.) Sacc. Syll. Fung. 5: 838. 1887.

Agaricus argillosus Berk. & Curt. Ann. Mag. Nat. Hist. II. 12: 421. 1853.

Pileus at first convex, firm, subcoriaceous when dry, 5–7.5 cm. broad, with the habit of *Gymnopus carnosus;* surface smooth, pale-brownish-yellow, margin inflexed; lamellae adnexed, much crowded, narrow, white to argillaceous; spores copious, pale-argillaceous, ellipsoid, subcymbiform, rather minute; stipe cartilaginous, radicate, attenuate below, white, hollow, 10 cm. long, 7 mm. thick.

TYPE LOCALITY: South Carolina.
HABITAT: On the ground in woods.
DISTRIBUTION: North Carolina and South Carolina.

27. **Naucoria sororia** Peck, Bull. Torrey Club 34: 101. 1907.

Pileus fleshy, fragile, convex, broadly umbonate, solitary or gregarious, 5–10 cm. broad; surface glabrous, lacunose, subviscid, tawny, often with a slightly darker zone near the margin when moist, margin even, wavy or slightly lobed; context firm, watery, white, the taste and odor farinaceous; lamellae narrow, crowded, adnate, whitish, becoming darker with age and on drying; spores ellipsoid, 10–12 × 6–8 μ; stipe equal or slightly bulbous, flexuous, fragile, stuffed, pale-tawny, white within, striate at the apex, 4–12 cm. long, 4–8 mm. thick.

TYPE LOCALITY: Falmouth, Massachusetts.
HABITAT: In open grassy places or on compost heaps.
DISTRIBUTION: Massachusetts and New York.

28. **Naucoria velutina** Murrill, sp. nov.

Pileus thin, submembranous, expanded, subumbonate, gregarious, 5–10 mm. broad; surface velvety-tomentose, pale-brownish, margin not striate; lamellae adnexed, subdistant, very broad, irregular, rosy-isabelline to pale-brownish, whitish and somewhat dentate on the edges,

ventricose; spores broadly fusiform, smooth, melleous under the microscope, 7–8 × 5–6 μ; stipe cylindric, concolorous, tubular, firm, pruinose-fibrillose at the apex, 3 cm. long, 1 mm. thick.

Type collected among mosses in a swamp at Redding, Connecticut, August 27, 1902, *F. S. Earle 1246* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

29. Naucoria pruinatipes (Peck) Sacc. Syll. Fung. 5: 842. 1887.

Agaricus pruinatipes Peck, Ann. Rep. N. Y. State Mus. **29**: 39. 1878.

Pileus regular, convex, 2.5–3.5 cm. broad; surface smooth, hygrophanous, brownish when moist, ochraceous-yellow when dry; context whitish; lamellae crowded, nearly plane, rounded behind, pale-cinnamon; spores subellipsoid, brownish-ferruginous, 6 μ long; stipe equal, firm, stuffed or hollow, pruinose, striate, pallid or cinereous, 2.5–5 cm. long, about 2 mm. thick.

TYPE LOCALITY: Greig, New York.
HABITAT: On the ground in woods.
DISTRIBUTION: New York.

30. Naucoria pallidomarginata (Peck) Murrill.

Agaricus pallidomarginatus Peck, Bull. Buffalo Soc. Nat. Sci. **1**: 50. 1873.
Hebeloma pallidomarginatum Sacc. Syll. Fung. **5**: 804. 1887.
Naucoria paludosa Peck, Ann. Rep. N. Y. State Mus. **41**: 68. 1888.
Naucoria uliginosa Peck, Ann. Rep. N. Y. State Mus. **54**: 149. 1900.

Pileus very thin, broadly convex or plane, 1.2–2.5 cm. broad; surface glabrous, hygrophanous, brown and striatulate on the margin when moist, buff-yellow when dry; context subconcolorous; lamellae crowded, thin, rather broad, adnexed, at first yellowish or pallid, then brownish-ochraceous, uneven or crenulate on the edges; spores ferruginous, ellipsoid, uniguttulate, 10–12 × 5–6 μ; stipe slender, firm, equal, hollow, brittle, glabrous, pallid or brownish, 2.5–5 cm. long, 1–2 mm. thick.

TYPE LOCALITY: Sandlake, New York.
HABITAT: In wet, marshy, or damp ground.
DISTRIBUTION: New York and Washington.

31. Naucoria umbriniceps Murrill, sp. nov.

Pileus rather thin, convex to subexpanded, slightly umbonate when young, about 1 cm. broad; surface glabrous, hygrophanous, zonate when fresh, umbrinous with an isabelline tint; lamellae sinuate, plane, broad, subdistant, fulvo-umbrinous at maturity, pallid and finely serrulate on the edges; spores ellipsoid, smooth, pale-yellow under the microscope, 7 × 3–4 μ stipe tapering upward, slender, tough, pruinose to glabrous, dull-brownish-pallid, 2 cm. long, 1.5 mm. thick.

Type collected on dead deciduous wood in woods at Lake Placid, Adirondack Mountains, New York, July 17–29, 1912, *W. A. & Edna L. Murrill 189* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

32. Naucoria serrulata Murrill, sp. nov.

Pileus convex to subexpanded, gregarious, 2–2.5 cm. broad; surface smooth, glabrous, hygrophanous, very uniform in color, umbrinous-fulvous, finely striate, margin entire, concolorous; context with mild taste; lamellae adnate, sometimes separating with age, rather crowded, broad, plane, umbrinous-avellaneous, grayish and minutely serrulate on the edges; spores ellipsoid, smooth, pale-yellowish under the microscope, 8–9 × 5–6 μ; stipe short, subequal, smooth, glabrous, pallid or somewhat umbrinous, 2–2.5 cm. long, 2 mm. thick.

Type collected on a dead beech log in woods at Lake Placid, Adirondack Mountains, New York, July 17–29, 1912, *W. A. & Edna L. Murrill 13* (herb. N. Y. Bot. Gard.).
HABITAT: On dead logs in woods.
DISTRIBUTION: Vicinity of Lake Placid, Adirondack Mountains, New York.

33. **Naucoria lignicola** (Peck) Sacc. Syll. Fung. 5: 838. 1887.

Agaricus lignicola Peck, Ann. Rep. N. Y. State Cab. 23: 91. 1872.

Pileus thin, convex, umbonate, 1.2–2.5 cm. broad; surface smooth or slightly fibrillose, hygrophanous, watery-cinnamon when moist, dull-yellow when dry, margin striatulate when moist; lamellae narrow, crowded, attached, cinnamon-colored; stipe slender, equal, hollow, slightly fibrillose, firm, mostly curved, reddish-brown, 2.5–5 cm. long.

TYPE LOCALITY: Sandlake, New York.
HABITAT: On old logs in woods.
DISTRIBUTION: Northern New York.

34. **Naucoria firma** Peck, Ann. Rep. N. Y. State Mus. 54: 148. 1901.

Pileus fleshy, firm, broadly convex, soon nearly plane, 1.5–2.5 cm. broad; surface hygrophanous, blackish-brown when moist, ochraceous-brown when dry, often rugulose; context white, the taste farinaceous, soon changing to bitter; lamellae thin, rather narrow, crowded, rounded behind, adnexed, minutely floccose on the edges, pallid; spores ellipsoid, brownish-ferruginous, 7.5 × 5 μ; stipe firm, equal, often flexuous or curved, stuffed or hollow, fibrillose-striate and minutely flocculose, concolorous or a little paler, 2.5–5 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Floodwood, New York.
HABITAT: On a decaying, prostrate trunk of sugar maple.
DISTRIBUTION: New York and Massachusetts.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. 54: *pl. H, f. 10–16*.

35. **Naucoria platysperma** Peck, Bull. Torrey Club 25: 324. 1898.

Pileus convex, becoming nearly plane, 2.5–3.5 cm. broad; surface glabrous, slightly tinged with ochraceous or reddish-yellow when young, soon whitish, margin at first adorned with vestiges of a white, flocculent veil; context white; lamellae moderately crowded, slightly rounded behind, pallid, becoming brownish; spores broadly ellipsoid, 15 × 12.5 μ; stipe equal, stuffed with a white pith, slightly flocculent or furfuraceous above when young, whitish, the mycelium sometimes forming white, thread-like strands, 3.5–5 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Compton, California.
HABITAT: On the ground.
DISTRIBUTION: Southern California.

36. **Naucoria pubescens** Murrill, sp. nov.

Pileus convex, not fully expanding, 1–1.5 cm. broad; surface dry, striate, uniformly isabelline, finely whitish-pubescent, margin thin, entire, concolorous, becoming lacerate with age; lamellae adnate, subdistant, ferruginous; spores ovoid, smooth, pale-melleous under the microscope, 7 × 4–5.5 μ; stipe short, subequal, isabelline, whitish-fibrillose, cartilaginous, arising from a mat of white mycelium, about 1 cm. long, 1–2 mm. thick.

Type collected on decayed wood in woods at Seattle, Washington, October 20–November 1, 1911, *W. A. Murrill 450* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

37. **Naucoria tubariiformis** Murrill, sp. nov.

Pileus small, convex-hemispheric to nearly expanded, not umbonate, gregarious, 1–1.5 cm. broad; surface smooth, glabrous, dull-yellow, margin brown, entire, not striate; context cream-colored, without characteristic taste or odor; lamellae squarely adnate, broad, slightly ventricose, subdistant, pale-brown, pallid and entire on the edges; spores ovoid, smooth, brownish-fulvous, 6–7 × 4 μ; cystidia none; stipe cylindric, subequal, cartilaginous, hollow, pale-brown to dark-brown, somewhat velvety at the apex, glabrous below, 3–4 cm. long, 1.5–2 mm. thick.

Type collected on a lawn at Stanford University, California, February 13, 1907, *A. M. Patterson 37* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

38. Naucoria mammillata Murrill, sp. nov.

Pileus conic to campanulate, not expanding, prominently umbonate, gregarious, 1–1.3 cm. broad; surface smooth, glabrous, dark-isabelline, stramineous on and near the umbo, the stramineous area becoming more extensive on drying, margin entire, dark-isabelline, bay and sharply inflexed in dried specimens; lamellae adnate, broad, subdistant, isabelline to fulvous, pallid and entire on the edges; spores oblong-ellipsoid, smooth, melleous under the microscope, mostly uniguttulate, 7 × 3–4 μ; stipe cylindric, equal, smooth, glabrous, cartilaginous, fulvous above, bay below, about 3.5 cm. long, 1–2 mm. thick.

Type collected on fallen, much decayed wood in woods at Seattle, Washington, October 20–November 1, 1911, *W. A. Murrill 694* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

39. Naucoria caespitosa Murrill, sp. nov.

Pileus rather thin, convex to plane, slightly umbonate at times, cespitose or gregarious, about 2 cm. broad; surface subviscid, smooth, glabrous, uniformly cream-colored or pale-isabelline, margin entire, not striate, involute when young, decorated with the remains of a slight, evanescent, fibrillose veil; lamellae adnexed or sinuate, narrow, crowded, yellowish to dark-melleous, entire and concolorous on the edges; spores ellipsoid, smooth, melleous under the microscope, 1–2-guttulate, 7–8.5 × 6 μ; stipe short, cylindric, equal, cartilaginous, cream-colored, slightly darker at the base, fibrillose from the remains of the veil, 1–1.5 cm. long, about 2 mm. thick.

Type collected on a dead, coniferous, moss-covered log in woods near Seattle, Washington, October 20–November 1, 1911, *W. A. Murrill 691* (herb. N. Y. Bot. Gard.).

HABITAT: On coniferous logs.

DISTRIBUTION: Vicinity of Seattle, Washington.

40. Naucoria brunneimarginata Murrill, sp. nov.

Pileus thin, campanulate to subexpanded, gibbous, scattered, 1.5–2.5 cm. broad; surface smooth, glabrous, pale-yellowish-gray or dark-cream-colored, margin entire, not striate, incurved when young, marked with a brownish zone; context cream-colored, without characteristic taste or odor; lamellae sinuate, narrow, rather distant, yellowish, soon colored by the spores, entire and concolorous on the edges; spores ovoid, smooth, melleous under the microscope, 8–9 × 5–6 μ; stipe cylindric, equal, slender, smooth, glabrous, cartilaginous, hollow, cream-colored, 3–5 cm. long, 1–2 mm. thick.

Type collected among leaves and grass in rich soil under trees at Madera Creek, Stanford University, California, December 21, 1902, *James McMurphy 52* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Vicinity of Stanford University, California.

41. Naucoria Harperi Murrill, sp. nov.

Pileus convex to plane, thin, gregarious, 2–2.5 cm. broad; surface hygrophanous, glabrous, uniformly leather-colored, margin entire, concolorous, striate, not projecting and not inflexed on drying; lamellae adnate, distant, ventricose, not very broad, ferruginous, entire and concolorous on the edges; spores ellipsoid, smooth, apiculate, pale-melleous under the microscope, 7–8 × 4–5 μ; stipe rather slender, equal or tapering upward, concolorous, glabrous above, whitish-floccose below, 3–4 cm. long, 2–3 mm. thick.

Type collected on a lawn at Berkeley, California, March 8, 1911, *R. A. Harper 64* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

42. Naucoria Pattersonae Murrill, sp. nov.

Pileus convex to expanded, not umbonate, solitary, 3–3.5 cm. broad; surface smooth, glabrous, creamy-white to dull-yellow, margin entire, concolorous, not striate; context cream-colored, with nutty taste and odor; lamellae slightly sinuate, broad, somewhat ventricose, subdistant, cream-colored, whitish and serrulate on the edges; spores oblong-ellipsoid, slightly curved at times, smooth, pale-yellow under the microscope, 7–8 × 4–5 μ; stipe cylindric,

equal, rather short and thick, tough, hollow, smooth, glabrous, clay-colored above, darker below, marked with a slight annular trace at the middle, 3–3.5 cm. long, 3–5 mm. thick.

Type collected in grassy soil near cypress trees at Stanford University, California, February 14, 1907, *A. M. Patterson 41* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

43. **Naucoria washingtonensis** Murrill, sp. nov.

Pileus convex to plane, not umbonate, sometimes slightly depressed, cespitose or gregarious, 2–3 cm. broad; surface dry or moist, minutely tomentose to subglabrous, uniformly isabelline, margin entire to somewhat irregular or eroded, concolorous, not striate; lamellae adnate or somewhat sinuate, plane, narrow, crowded, dirty-isabelline, pallid and slightly serrulate on the edges; spores ellipsoid, tapering at both ends, finely asperulate, melleous under the microscope, 8.5–10.5 × 7 μ; stipe cylindric, equal, very straight, smooth, glabrous, isabelline, darker below, cartilaginous, hollow, 6–8 cm. long, 2–3 mm. thick.

Type collected in humus in a peat bog at Seattle, Washington, October 20–November 1, 1911, *W. A. Murrill 235* (herb. N. Y. Bot. Gard.).
HABITAT: On the ground in low woods, rarely in peat bogs.
DISTRIBUTION: Very common in the vicinity of Seattle, Washington.

44. **Naucoria californica** Murrill, sp. nov.

Pileus thin, convex to plane or slightly depressed, not at all umbonate, cespitose, 2.5 cm. broad; surface smooth, glabrous, hygrophanous, uniformly fulvous, fading to pale-isabelline in dried specimens, margin entire, concolorous, not striate; lamellae squarely adnate, many times inserted, plane, rather narrow, crowded, becoming brownish-fulvous at maturity, whitish-pubescent on the edges; spores ellipsoid, smooth, melleous under the microscope, mostly uniguttulate, 7 × 3–4 μ; stipe cylindric, equal, smooth, glabrous, concolorous, stuffed, 1.5–2 cm. long, 2–2.5 mm. thick.

Type collected on chips in a grove in Golden Gate Park, San Francisco, California, November 21, 1911, *W. A. Murrill 1103* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

45. **Naucoria radicata** Murrill, sp. nov.

Pileus rather thin, irregular, campanulate to subexpanded, with a prominent, rounded umbo, solitary, 4 cm. broad; surface smooth, glabrous, hygrophanous, uniformly fulvous, margin concolorous, incurved, not striate; lamellae sinuate-adnexed, irregular, crowded, rather narrow, whitish or pale-isabelline, becoming ferruginous in dried specimens, concolorous and dentate on the edges; spores ellipsoid, smooth, pale-yellow under the microscope, 6–7 × 3–4 μ; stipe fusiform, smooth, glabrous, pale-latericious, blackening when bruised, long-radicate, 9 cm. long, 2–3 mm. thick.

Type collected on the ground in coniferous woods at Glen Brook, Oregon, November 7, 1911, *W. A. Murrill 775* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

46. **Naucoria sphagnorum** Murrill, sp. nov.

Pileus conic to campanulate, umbonate, gregarious, 2–2.5 cm. broad; surface moist, smooth, glabrous, striate, bay, paler on the margin; lamellae adnexed, rather crowded, fulvous-isabelline, entire and concolorous on the edges; spores oblong-ellipsoid, smooth, melleous under the microscope, 8–9 × 5–6 μ; stipe equal, fibrillose, latericious, cartilaginous, 6 cm. long, 3 mm. thick.

Type collected in sphagnum in a peat bog at Seattle, Washington, October 20–November 1, 1911, *W. A. Murrill 482* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

47. **Naucoria vinicolor** Peck, Bull. Torrey Club **36**: 334. 1909.

Pileus broadly convex or centrally depressed, 2–3 cm. broad; surface glabrous, dry, wine-colored; context reddish; lamellae subdistant, broad, adnexed, wine-colored; spores ellipsoid,

obtuse at each end, smooth, 7–8 × 4–5 μ; stipe equal, hollow, fibrillose, subbulbous, concolorous, often covered with a white tomentum at the base, 3–5 cm. long, 3–4 mm. thick.

TYPE LOCALITY: Claremont, California.
HABITAT: Growing from decaying wood or other vegetable matter in open ground.
DISTRIBUTION: Known only from the type locality.

48. Naucoria badia Murrill, sp. nov.

Pileus firm, drying easily, convex to slightly depressed, gregarious, 2 cm. broad; surface dry, uniformly bay, densely and conspicuously hispid-squamulose, margin concolorous, radiate-rugose and plicate; lamellae adnate, broad, subdistant, plane, fulvous, pubescent to serrulate on the edges; spores broadly ovoid, smooth, pale-melleous under the microscope, usually uniguttulate, 7–9 × 6–7 μ; stipe short, tough, subequal, clothed and colored like the pileus, 1 cm. long, 2–3 mm. thick.

Type collected on dead alder in woods at Seattle, Washington, October 20–November 1, 1911, *W. A. Murrill 586* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

49. Naucoria tepeitensis Murrill, Mycologia 4: 79. 1912.

Pileus very thin, convex, gregarious, reaching 12 mm. broad; surface smooth, whitish, hygrophanous, faintly striate over the lamellae, margin entire, inrolled when young; lamellae free to adnate, whitish, dull, several times inserted, broad, distant, the edges white and slightly crenulate; spores subovoid, slightly flattened on one side, smooth, uninucleate, very pale melleous under the microscope, 6 × 4 μ; stipe crooked, arising from a mat of white mycelium, slightly enlarged above, smooth, glabrous, whitish, hygrophanous, 1 cm. long, about 1 mm. thick.

TYPE LOCALITY: Tepeite Valley, near Cuernavaca, Morelos, Mexico.
HABITAT: On a rotten log in a moist, virgin forest.
DISTRIBUTION: Known only from the type locality.

50. Naucoria jalapensis Murrill, Mycologia 4: 77. 1912.

Pileus thin, conic to convex, umbonate, 2.5 cm. broad; surface pearly-white, slightly yellowish on the umbo, glabrous, dry, striate, margin at first inflexed; lamellae sinuate-adnexed, broad, rather distant, plane, white to ferruginous, with a purplish tint; spores ovoid or ellipsoid, drawn to a point at one side of the base, smooth, pale-yellow under the microscope, 7 × 4 μ; stipe equal, cylindric, curved, milky-white, glabrous, 5 cm. long, 2 mm. thick; veil fibrillose, clinging to the young margin, soon evanescent.

TYPE LOCALITY: Jalapa, Vera Cruz, Mexico.
HABITAT: On dead wood in a moist, virgin forest.
DISTRIBUTION: Known only from the type locality.

51. Naucoria papularis (Fries) Sacc. Syll. Fung. 5: 856. 1887.

Agaricus papularis Fries, Nova Acta Soc. Sci. Upsal. III. 1: 225. 1851.

Pileus plane, very obtuse, fleshy, gregarious or cespitose, 2.5–5 cm. broad; surface white, rough, with innate, stalked, concolorous papules, margin thin, striatulate; lamellae adnate with a decurrent tooth, plane, broad, distant, pallid to cinnamon; stipe equal, fibrillose, pallid, hollow, tough, 4–5 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Island of St. Thomas.
DISTRIBUTION: Known only from the type locality.

52. Naucoria subolivacea Murrill, sp. nov.

Pileus smooth, thin, convex to plane, not umbonate, solitary, 1 cm. broad; surface smooth, appearing hygrophanous and glabrous but finely pubescent under a lens, not striate, uniformly dull-olivaceous, margin entire, concolorous; lamellae adnate, several times inserted, narrow, crowded, slightly ventricose, pale-melleous, serrulate and pallid on the edges; spores broadly ovoid, smooth, very pale melleous under the microscope, 6–7 × 4–5 μ; stipe cylindric, equal, hygrophanous, pale-melleous, finely pulverulent, 1 cm. long, 1.5 mm. thick.

Type collected on rotten wood on the ground in the Tepeite Valley, near Cuernavaca, Mexico, December 28, 1909, *W. A. & Edna L. Murrill 472* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

53. **Naucoria pellucida** Murrill, Mycologia 4: 78. 1912.

Pileus thin, conic to plane, umbonate, 7 mm. broad; surface bay to latericeous on the umbo, testaceous and striate between the umbo and the margin, dotted over the surface with translucent, gelatinous, pearly-white droplets or specks; lamellae adnexed, ventricose, distant, pale-testaceous, marked with droplets like those on the surface of the pileus; spores ellipsoid, finely echinulate, fulvous, 8 × 5 μ; stipe cylindric, equal, smooth, pallid above, bay below, guttate, 1 cm. long, 0.5 mm. thick.

TYPE LOCALITY: New Haven Gap, near Cinchona, Jamaica.
HABITAT: On dead wood.
DISTRIBUTION: Known only from the type locality.

54. **Naucoria oinodes** (Berk. & Curt.) Sacc. Syll. Fung. 5: 842. 1887.

Agaricus oinodes Berk. & Curt. Jour. Linn. Soc. 10: 291. 1868.

Pileus hemispheric, umbonate, gregarious, 6–8 mm. broad; surface glabrous, vinosous, striate; lamellae adnate, distant, ferruginous-reddish; spores ferruginous; stipe short, brownish, 12 mm. long.

TYPE LOCALITY: Cuba.
HABITAT: On rotten wood.
DISTRIBUTION: Known only from the type locality.

55. **Naucoria hepaticicola** Murrill, Mycologia 4: 78. 1912.

Pileus hemispheric to convex, gregarious, 1 cm. broad; surface dry, glabrous, smooth, not striate, fulvous; lamellae adnate, plane or slightly arcuate, broad, distant, inserted, melleous to fulvous; spores ovoid, somewhat irregular in outline, pointed at one end, smooth, uninucleate, melleous, 7–9 × 4–5 μ; stipe curved, tapering upward, glabrous, smooth, cartilaginous, 1.5 cm. long, 2 mm. thick above; veil very slight, fibrillose, evanescent.

TYPE LOCALITY: Jalapa, Vera Cruz, Mexico.
HABITAT: On and among liverworts on a clay bank.
DISTRIBUTION: Known only from the type locality.

56. **Naucoria cyathicola** Murrill, Mycologia 4: 77. 1912.

Pileus hemispheric-umbonate to convex, 7–12 mm. broad; surface isabelline, pale-fulvous on the umbo, innate-fibrillose, margin entire, not striate; lamellae distant, squarely adnate, whitish to pale-ochraceous; spores oblong-ellipsoid, smooth, very pale yellowish under the microscope, 6 × 3.5 μ; stipe subequal, cylindric, fibrillose, isabelline, cartilaginous, 2 cm. long, 1.5 mm. thick; veil not evident, except in fibrils on stipe and pileus.

TYPE LOCALITY: Morce's Gap, near Cinchona, Jamaica.
HABITAT: On dead trunks of tree-ferns.
DISTRIBUTION: Known only from the type locality.

57. **Naucoria corticola** Murrill, Mycologia 4: 77. 1912.

Pileus thin, convex to subexpanded, gregarious, 1–1.5 cm. broad; surface avellaneous-isabelline, innate-fibrillose with slight tufts, resembling *Panus stypticus*, margin undulate, incurved when young; lamellae adnate, dull-whitish to bay-fulvous, broad, heterophyllous, rather distant; spores ellipsoid, smooth, ferruginous, 8–9 × 4–5 μ; stipe cylindric, equal, yellow, glabrous at the apex, whitish-pubescent below, 1 cm. long, 1 mm. thick.

TYPE LOCALITY: Cinchona, Jamaica.
HABITAT: On the bark of a dead stump.
DISTRIBUTION: Known only from the type locality.

58. **Naucoria mexicana** Murrill, sp. nov.

Pileus thin, fragile, conic to convex, not fully expanding, gregarious, 1 cm. broad; surface dry, densely granular and chaffy, uniformly fulvous, margin entire, concolorous; lamellae adnate, broad, ventricose, distant, pallid to fulvous, entire and concolorous on the edges;

spores subovoid, flattened on one side, rounded at the ends, smooth, dark-melleous under the microscope, uniguttulate, 7–8 × 4–5 μ; stipe subequal, slender, tough, fulvous, hispid-tomentose, 1–2 cm. long, 1–2 mm. thick.

Type collected on much decayed wood at Xuchiles, near Cordoba, Mexico, January 17, 1910, *W. A. & Edna L. Murrill 1140* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Vicinity of Cordoba and Orizaba, Vera Cruz, Mexico.

59. Naucoria xuchilensis Murrill, Mycologia 4: 80. 1912.

Pileus convex to plane, slightly depressed, solitary, 3.5 cm. broad; surface ochraceous, slightly fulvous at the center, subglabrous, even; lamellae adnate, broad, distant, inserted, fulvous; spores ovoid, smooth, uninucleate, ochroleucous, 7–9 × 4–5 μ; stipe cylindric, equal, glabrous, cremeous, 2 cm. long, 3 mm. thick.

TYPE LOCALITY: Xuchiles, near Cordoba, Vera Cruz, Mexico.
HABITAT: In rich, low ground under coffee trees.
DISTRIBUTION: Known only from the type locality.

60. Naucoria spinulifer Murrill, Mycologia 4: 79. 1912.

Pileus hemispheric-umbonate with revolute margin, 2 cm. broad; surface innate-fibrillose, smooth, isabelline, testaceous on the umbo, cremeous at the margin; lamellae adnate, arcuate, of medium breadth and distance, dull-purplish-isabelline; spores ellipsoid, smooth, ferruginous, 5–7 × 3.5–4 μ; cystidia hyaline, flask-shaped, with short slender stalk and long cylindric neck, 10–15 μ thick, 30–50 μ long, including the stalk; stipe curved, cylindric, equal, subglabrous, stramineous above, fulvous below, 2.5 cm. long, 2.5 mm. thick.

TYPE LOCALITY: Morce's Gap, near Cinchona, Jamaica.
HABITAT: On dead wood.
DISTRIBUTION: Known only from the type locality.

61. Naucoria subpectinata Murrill.

Agaricus pectinatus Berk. & Curt. Jour. Linn. Soc. **10**: 291. 1868. Not *A. pectinatus* Schw. 1822.
Naucoria pectinata Sacc. Syll. Fung. **5**: 856. 1887.

Pileus thin, convex to plane or depressed, cespitose, 2.5–4 cm. broad; surface glabrous, hygrophanous, fulvous, margin deeply striate; lamellae adnexed or adnate, narrow, subdistant, concolorous; spores ovoid or ellipsoid, ferruginous, 6–7 × 3–4 μ; stipe glabrous, brown or reddish-brown, solid, 2.5–6 cm. long, 2–5 mm. thick.

TYPE LOCALITY· Cuba.
HABITAT: On logs.
DISTRIBUTION: Cuba and Jamaica.

62. Naucoria Earlei Murrill, Mycologia 4: 77. 1912.

Pileus thin, convex to expanded or depressed, 2–3 cm. broad; surface glabrous, pallid or alutaceous, margin even or slightly striate; lamellae slightly adnexed, subdistant, rather narrow but ventricose, pallid to fuscous; spores ellipsoid, smooth, fuscous, 10–12 × 6–8 μ; stipe cylindric, solid, firm, glabrous, pallid to brownish, darker than the pileus, 3–4 cm. long, 2 mm. thick.

TYPE LOCALITY: Castleton Gardens, Jamaica.
HABITAT: On damp, bare ground.
DISTRIBUTION: Known only from the type locality.

63. Naucoria montana Murrill, Mycologia 4: 78. 1912.

Pileus hemispheric-umbonate, gregarious, 1–2 cm. broad; surface glabrous, striate, light-brown, dark-brown on the umbo; lamellae adnate, broad, of medium distance, heterophyllous; spores pip-shaped, pointed at one or both ends, minutely echinulate, ferruginous, 9–11 × 4–5 μ; stipe crooked, slender, cylindric, equal, glabrous, brown above, fuliginous below, 3–4 cm. long, 1–2 mm. thick.

TYPE LOCALITY: Cinchona, Jamaica.
HABITAT: On dead wood.
DISTRIBUTION: Jamaica.

64. **Naucoria Sacchari** Murrill, Mycologia 4: 79. 1912.

Pileus thin, subfleshy, convex to expanded, obtuse, 1–1.5 cm. broad; surface moist, subviscid, not striate, slightly floccose-scaly to glabrous, pale-fuscous, shading to nearly white on the margin; lamellae adnate, distant, nearly plane, rather broad, pale-fuscous; spores smooth, ellipsoid, ferruginous, 10–12 × 7–8 μ; stipe cylindric, hollow, floccose, concolorous, 3–4 cm. long, 1 mm. thick.

TYPE LOCALITY: Hope Gardens, near Kingston, Jamaica.
HABITAT: On rotting sugar-cane trash.
DISTRIBUTION: Known only from the type locality.

65. **Naucoria Underwoodii** Murrill, Mycologia 4: 80. 1912.

Pileus thin, rather fleshy, convex to expanded, scattered, 2 cm. broad; surface glabrous, hygrophanous, brownish, ochraceous when dry, the disk darker; lamellae adnexed, subcrowded, rather broad, subventricose, dull-fulvous; spores broadly ellipsoid, smooth, 8–9 × 6–7 μ; stipe crooked, slightly larger below, concolorous, hollow, subfibrillose, the apex floccose-fibrillose, 3 cm. long, 3 mm. thick.

TYPE LOCALITY: El Yunque, Cuba.
HABITAT: On rotten wood.
DISTRIBUTION: Known only from the type locality.

DOUBTFUL AND EXCLUDED SPECIES

Naucoria arenicola (Berk.) Sacc. Syll. Fung. **5**: 845. 1887. (*Agaricus arenicola* Berk. Lond. Jour. Bot. **2**: 511. 1843.) Reported by Fries from Oersted's collections in Costa Rica, but very probably different from the South African species. Oersted's figures are unsatisfactory and no specimens are to be found.

Naucoria Bellotiana (Berk.) Sacc. Syll. Fung. **5**: 858. 1887. (*Agaricus Bellotianus* Berk. Jour. Linn. Soc. **17**: 14. 1880.) Described from Bellot Island, Greenland, as convex, with granular, pulverulent stipe, argillaceous lamellae, and large, oblique spores, 12–13 μ long. No measurements nor colors of the hymenophore are given and the description is otherwise inadequate. The species is said to be very near *Agaricus arvalis*.

Naucoria carpophila (Fries) Quél. Champ. Jura Vosg. 102. 1872. (*Agaricus carpophilus* Fries, Obs. Myc. **1**: 45. 1815.) There are three collections at Albany bearing this name, all of them different.

Naucoria cerodes (Fries) Quél. Champ. Jura Vosg. 233. 1872. (*Agaricus cerodes* Fries, Epicr. Myc. 195. 1838.) Incorrectly reported from the Carolinas and Santo Domingo.

Naucoria conspersa (Pers.) Quél. Champ. Jura Vosg. 101. 1872. (*Agaricus conspersus* Pers. Ic. Descr. Fung. 50. 1800.) Reported from North Carolina by Schweinitz.

Naucoria coprinoceps (Berk. & Curt.) Sacc. Syll. Fung. **5**: 838. 1887. (*Agaricus coprinoceps* Berk. & Curt. Jour. Linn. Soc. **10**: 290. 1868.) Collected by Wright in Cuba. The spores are too dark for *Naucoria*.

Naucoria erinacea (Fries) Gill. Champ. Fr. 543. 1876. (*Agaricus erinaceus* Fries, Elench. Fung. **1**: 33. 1828.) Reported from Maine, Minnesota, and elsewhere. Two collections by Murrill in central Maine resemble Cooke's figure and Bresadola's specimens, but the spores are only 7–8 × 3–4 μ, much too small for the true *N. erinacea*.

Naucoria euthugramma (Berk. & Curt.) Sacc. Syll. Fung. **5**: 835. 1887. (*Agaricus euthugrammus* Berk. & Curt. Jour. Linn. Soc. **10**: 290. 1868.) Described from Wright's collections on rotten wood in Cuba. The spores prove to be purplish-brown.

Naucoria melinoides (Fries) Quél. Champ. Jura Vosg. 99. 1872. (*Agaricus melinoides* Fries, Syst. Myc. **1**: 266. 1821.) Incorrectly reported from Maryland and Wisconsin by the older mycologists, who probably confused it with *Galerula Hypni*.

Naucoria myosotis (Fries) P. Karst. Bidr. Finl. Nat. Folk **32**: 430. 1879. (*Agaricus myosotis* Fries, Obs. Myc. **2**: 34. 1818.) Reported from New York and Massachusetts, but the specimens I have seen did not correspond to Fries' description, and the spores were only 8–9 × 5–6 μ instead of 16–18 × 6–9 μ.

Naucoria Nicotiana (Berk. & Curt.) Sacc. Syll. Fung. **5**: 853. 1887. (*Agaricus Nicotianus*

Berk. & Curt. Proc. Am. Acad. **4**: 116. 1858.) Described from specimens collected on damp hillsides, Bering Strait. Type not seen and description inadequate.

Naucoria pusiola (Fries) Gill. Champ. Fr. 546. 1876. (*Agaricus pusiolus* Fries, Syst. Myc. **1**: 264. 1821.) Incorrectly reported from South Carolina by Ravenel.

Naucoria pygmaea (Bull.) Gill. Champ. Fr. 544. 1876. (*Agaricus pygmaeus* Bull. Herb. Fr. *pl. 525, f. 2*; hyponym. 1791; DC. Fl. Fr. **2**: 166. 1805.) Reported from Ithaca by Atkinson on Bresadola's determination.

Naucoria reducta (Fries) Sacc. Syll. Fung. **5**: 849. 1887. (*Agaricus reductus* Fries, Monogr. Hymen. Suec. 379. 1857.) Reported from Greenland by Rostrup.

Naucoria segestria (Fries) Quél. Champ. Jura Vosg. 234. 1872. (*Agaricus segestrius* Fries, Syst. Myc. **1**: 262. 1821.) Reported from New Jersey by Ellis as occurring among mosses in a swamp, whereas the species occurs in Sweden on twigs and wood.

Naucoria sideroides (Bull.) Quél. Champ. Jura Vosg. 99. 1872. (*Agaricus sideroides* Bull. Herb. Fr. *pl. 588*; hyponym. 1793; Bull. & Vent. Hist. Champ. Fr. **1**: 574. 1809.) Reported by Berkeley from Wright's Cuban collections, but evidently a wrong determination.

Naucoria siparia (Fries) Gill. Champ. Fr. 542. 1876. (*Agaricus siparius* Fries, Syst. Myc. **1**: 261. 1821.) Reported from Michigan by Kauffman, as occurring there on soil or among mosses.

Naucoria subglobosa (Alb. & Schw.) Sacc. Syll. Fung. **5**: 830. 1887. (*Agaricus subglobosus* Alb. & Schw. Consp. Fung. 169. 1805.) Reported from South Carolina by Ravenel. See *N. pascuensis*.

Naucoria tabacina (DC.) Gill. Champ. Fr. 547. 1876. (*Agaricus tabacinus* DC. Fl. Fr. **5**: 46. 1815.) Reported from Massachusetts by Davis and from Michigan by Kauffman.

Naucoria vervacti (Fries) Quél. Champ. Jura Vosg. 100. 1872. (*Agaricus vervacti* Fries, Syst. Myc. **1**: 263. 1821.) Reported from Rhode Island, Ohio, and Kansas by the older mycologists, but probably confused with *N. semiorbicularis*.

68. PLUTEOLUS (Fries) Gill. Champ. Fr. 549. 1876.

Agaricus § *Pluteolus* Fries, Hymen. Eur. 266. 1874.

Pileus fleshy, putrescent, the margin straight and appressed when young; lamellae free, rarely adnexed; spores ochraceous, ferruginous, or fulvous; stipe central, slender, tubular, cartilaginous; veil none.

Type species, *Pluteolus reticulatus* (Fries) Gill.

I. SPECIES OCCURRING IN TEMPERATE NORTH AMERICA, EXCEPT THOSE CONFINED TO THE PACIFIC COAST

Pileus 1–2 cm. broad.
  Pileus olivaceous, the umbo chestnut-colored. — 1. *P. callistus.*
  Pileus grayish-stramineous, fuscescent. — 2. *P. glutinosus.*
Pileus 2.5–8 cm. broad.
  Pileus white. — 3. *P. albus.*
  Pileus pale-yellow, sometimes brownish-tan-colored. — 4. *P. versicolor.*
  Pileus pinkish-gray. — 5. *P. coprophilus.*
  Pileus brownish-yellow.
    Stipe 4–7 cm. long, 2–4 mm. thick. — 6. *P. flavellus.*
    Stipe 7.5–10 cm. long, 2 mm. thick. — 7. *P. expansus.*
  Pileus brown or fuliginous.
    Pileus hygrophanous; species occurring in sandy loam. — 8. *P. brunneus.*
    Pileus viscid; species occurring on rotten logs. — 9. *P. mucidolens.*

II. SPECIES CONFINED TO THE PACIFIC COAST

Pileus stramineous or cremeous.
  Pileus 1–2.5 cm. broad. — 10. *P. cremeus.*
  Pileus 2.5–5 cm. broad.
    Stipe 2.5–5 cm. long. — 11. *P. californicus.*
    Stipe 10 cm. long. — 12. *P. stramineus.*
Pileus luteous, 2–3.5 cm. broad. — 13. *P. luteus.*
Pileus dark-avellaneous, 1 cm. broad. — 14. *P. parvulus.*

III. SPECIES CONFINED TO TROPICAL NORTH AMERICA

Pileus isabelline, paler on the margin. — 15. *P. jamaicensis.*

1. **Pluteolus callistus** Peck, Ann. Rep. N. Y. State Mus. **46**: 140 (60). 1893.

Agaricus callistus Peck, Bull. Buffalo Soc. Nat. Sci. **1**: 52. 1873.
Galera callista Sacc. Syll. Fung. **5**: 865. 1887.

Pileus thin, expanded, subumbonate, 1.2–2 cm. broad; surface smooth, viscid, olivaceous or ochraceous, bright-chestnut on the umbo, assuming a dull-metallic-green color on drying, margin striatulate; lamellae thin, crowded, ventricose, attached to but easily separating from the stipe, yellowish, becoming bright-ferruginous, white on the edges when dry; spores 8.7 × 5 μ; stipe equal, hollow, pruinose, yellow, 2.5–3.5 cm. long, 1 mm. thick.

TYPE LOCALITY: Croghan, New York.
HABITAT: Exsiccated water holes in swampy woods.
DISTRIBUTION: New York and Massachusetts.

2. **Pluteolus glutinosus** Clements, Bot. Surv. Neb. **5**: 10. 1901.

Pileus membranous, conic-campanulate, at length explanate and repand, umbonate, 1.5–2 cm. broad; surface glabrous, thickly covered with a tenacious mucilage, gray-stramineous, fuscescent to the margin, which is striate to the middle, at length split; lamellae free, distant, ventricose, brown; spores ovoid or ovoid-ellipsoid, smooth, amber, 13–16 × 10–12 μ; stipe graceful, hollow, shining, equal, densely fibrillose-pulverulent, pale-ochroleucous, white-striate toward the apex, 5–10 cm. long, 3 mm. thick.

TYPE LOCALITY: Otowanie Woods, Nebraska.
HABITAT: Among stercorate leaves.
DISTRIBUTION: Known only from the type locality.

3. **Pluteolus albus** (Peck) Murrill.

Galera alba Peck, Bull. Torrey Club **24**: 143. 1897.

Pileus submembranous, campanulate, very fragile, 2.5–5 cm. broad; surface moist, striate, white, splitting on the margin; lamellae narrow, crowded, white, becoming brownish-ferruginous; spores ellipsoid, 12.5–15 × 7.5–10 μ; stipe fragile, hollow, glabrous, white, 3.5–6.5 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Brookings, South Dakota.
HABITAT: On rich ground in the shade of weeds.
DISTRIBUTION: Known only from the type locality.

4. **Pluteolus versicolor** (Peck) Murrill.

Galera versicolor Peck, Bull. Torrey Club **24**: 143. 1897.

Pileus thin, fragile, convex or subcampanulate, 3.5–6.5 cm. broad; surface moist or slightly viscid, glabrous, usually pale-yellow, sometimes brownish-tan-colored, margin striate; lamellae crowded, white or pale-yellow, becoming reddish-ferruginous; spores very unequal in size, 12.5–20 × 7.5–12.5 μ, usually containing one to three nuclei; stipe equal, fragile, hollow, slightly mealy or pruinose, often tomentose at the base, white, 2.5–10 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Brookings, South Dakota.
HABITAT: On manure and other decaying vegetable matter.
DISTRIBUTION: Known only from the type locality.

5. **Pluteolus coprophilus** Peck, Ann. Rep. N. Y. State Mus. **46**: 59. 1893.

Bolbitius radians Morgan, Jour. Cinc. Soc. Nat. Hist. **18**: 37. 1895.

Pileus thin, submembranous, fragile, conic or campanulate, becoming nearly plane, sometimes cespitose, 2.5–6 cm. broad; surface somewhat viscid when moist, pinkish-gray, margin finely striate; lamellae narrow, crowded, free, pale-cinnamon-colored; spores ellipsoid, dark-ferruginous, 12.5–15 × 7.5 μ; stipe long, straight or somewhat flexuous, hollow, flocculose, white, sometimes tinged with pink, 5–8 cm. long, 2–4 mm. thick.

TYPE LOCALITY: West Albany, New York.
HABITAT: In dung heaps.
DISTRIBUTION: Canada to Ohio in the eastern United States.
EXSICCATI: Ellis & Ev. N. Am. Fungi *3404*.

6. **Pluteolus flavellus** Murrill, sp. nov.

Pileus fragile, convex to expanded, not umbonate, scattered, reaching 4 cm. broad; surface glabrous, viscid when young, light-brownish-yellow, margin pallid, deeply striate, splitting with age; context thin, bright-yellow, the taste mild; lamellae adnexed, narrow, crowded, pale-lemon-yellow, fading in herbarium specimens and not showing coloration by the spores, finely serrulate on the edges; spores ellipsoid, smooth, ferruginous under the microscope, scanty, uniguttulate, 12–13 × 8–9 μ; stipe equal, hollow, smooth, pruinose-furfuraceous, lemon-yellow with a whitish bloom, 4–7 cm. long, 2–4 mm. thick.

Type collected in soil by the roadside in the New York Botanical Garden, June 13, 1900, *F. S. Earle 90* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

7. **Pluteolus expansus** Peck, Ann. Rep. N. Y. State Mus. **46**: 139 (59). 1893.

Agaricus expansus Peck, Bull. Buffalo Soc. Nat. Sci. **1**: 52. 1873.
Galera expansa Sacc. Syll. Fung. **5**: 870. 1887.

Pileus submembranous, expanded or centrally depressed, 2.5–5 cm. broad; surface viscid, brownish-ocher, sometimes tinged with yellow and pink hues, plicate-striate on the margin; context thin, watery-yellow, the taste mild; lamellae crowded, just free or slightly attached, ferruginous; spores 11 × 7 μ; stipe long, equal, hollow, slightly pruinose, faintly striate, yellow, 7.5–10 cm. long, 2 mm. thick.

TYPE LOCALITY: Sandlake, New York.
HABITAT: On decaying wood or on the ground.
DISTRIBUTION: New England and New York.

8. **Pluteolus brunneus** Murrill, sp. nov.

Pileus conic to fully expanded, umbonate, cespitose or gregarious, 3–5 cm. broad; surface smooth, glabrous, hygrophanous, striate, dull-brown, avellaneous on the umbo, margin entire to undulate, concolorous; lamellae adnexed, crowded, narrow, pallid to ferruginous, white and serrulate on the edges; spores ovoid, smooth, melleous under the microscope, uniguttulate, 7–8.5 × 5–6 μ; stipe slender, equal, smooth, glabrous, milk-white, about 6 cm. long and 2 mm. thick.

Type collected in sandy loam at Stockbridge, Massachusetts, September 3, 4, 1911, *W. A. Murrill & W. Gilman Thompson* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

9. **Pluteolus mucidolens** (Berk.) Earle, Torreya **3**: 125. 1903.

Agaricus mucidolens Berk. Lond. Jour. Bot. **4**: 301. 1845.
? *Pluteolus Leaianus* Sacc. Syll. Fung. **11**: 60. 1895.

Pileus pluteiform, lobed, 5–8 cm. broad; surface glabrous, viscid, shining, fuliginous; context having the odor of decayed cheese; lamellae free; spores broadly subcymbiform, with a small nucleus, dull-ferruginous; stipe fibrillose, clothed with brownish fibers, 5 cm. or more long.

TYPE LOCALITY: Ohio.
HABITAT: On rotten logs.
DISTRIBUTION: Known only from the type locality.

10. **Pluteolus cremeus** Murrill, sp. nov.

Pileus conic to subexpanded, truncate, scattered, 1–2.5 cm. broad; surface smooth, glabrous, uniformly cream-colored, margin entire, concolorous, not striate; context cream-colored, with farinaceous taste but without characteristic odor; lamellae free, crowded, rather broad, ventricose, fulvous at maturity, whitish and finely serrulate on the edges; spores ovoid, smooth, melleous under the microscope, 8–9 × 5–6 μ; stipe cylindric, equal, cartilaginous, hollow, smooth, glabrous, whitish, 3–5 cm. long, 1.5–3 mm. thick.

Type collected among sticks and leaves in rich soil under trees at Madera Creek, near Stanford University, California, December 21, 1902, *James McMurphy 57* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

11. **Pluteolus californicus** McClatchie, Proc. So. Calif. Acad. Sci. 1: 383. 1897.

Pileus campanulate or ovoid to expanded, 2.5–5 cm. broad and 1–3 cm. high; surface viscid when moist, cream-colored or reddish; lamellae free, crowded, thin, 2–5 mm. wide, cream-colored, white on the edges; spores ellipsoid, 12–18 × 7–9 μ; stipe fragile, subequal, hollow, villose-pulverulent or pruinose, 2.5–5 cm. long, 2–3 mm. thick.

TYPE LOCALITY: Compton, California.
HABITAT: On dead stems and manure.
DISTRIBUTION: Compton and Wilmington, California.

12. **Pluteolus stramineus** Murrill, Mycologia 4: 246. 1912.

Pileus thin, convex, solitary, 5 cm. broad; surface glabrous, viscid, flavous and rugose at the center, pale-stramineous and closely and conspicuously striate from the central area to the margin; lamellae narrow, free or slightly adnexed, twice inserted, dull-dirty-stramineous; spores ovoid, smooth, bright-ochraceous-melleous under a microscope, 11–14 × 6–8 μ; stipe perfectly straight, cylindric, equal, fleshy, smooth, stramineous, pulverulent above, hollow, 10 cm. long, 5 mm. thick.

TYPE LOCALITY: Corvallis, Oregon.
HABITAT: In an open grassy yard after a light rain.
DISTRIBUTION: Known only from the type locality.

13. **Pluteolus luteus** Peck, Bull. Torrey Club **22**: 203. 1895.

Pileus thin, very fragile, at first subovoid, then convex or subcampanulate, gregarious, 2–3.5 cm. broad; surface glabrous, viscid, yellow, margin slightly striate; lamellae numerous, crowded, free or but slightly adnexed, yellowish, becoming ferruginous; spores ellipsoid, 10–12.5 × 6–7.5 μ; stipe slender, hollow, slightly thickened toward the base, yellowish, the apex striate and sprinkled with mealy particles, 3.5–7.5 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Pasadena, California.
HABITAT: Under trees on decaying manure and in grass.
DISTRIBUTION: California.

14. **Pluteolus parvulus** Murrill, Mycologia **4**: 246. 1912.

Pileus convex to subplane, thin, solitary, scarcely 1 cm. broad; surface smooth, glabrous, shining, slightly viscid, dark-avellaneous, the small umbo concolorous, margin striate; lamellae free, ventricose, broad, fulvous, the edges white and minutely serrulate; spores ellipsoid, regular, smooth, bright-melleous under a microscope, 9–11 × 5 μ; stipe enlarged at the apex, pulverulent above, glabrous below, smooth, straw-colored, hollow, flaccid and collapsing, 2 cm. long, 1 mm. thick

TYPE LOCALITY: Preston's Ravine, near Palo Alto, California.
HABITAT: In humus on the ground in woods.
DISTRIBUTION: Known only from the type locality.

15. **Pluteolus jamaicensis** Murrill, sp. nov.

Pileus broadly convex to plane, thin, not umbonate, solitary, 3–4 cm. broad; surface dry, glabrous, isabelline on the disk, fading to pale-yellowish on the margin, which is entire, not incurved on drying; context with a distinctly mealy odor; lamellae very narrow and much crowded, free or slightly adnexed, thin, pale-melleous, pallid and entire on the edges; spores ellipsoid or ovoid, smooth, pale-yellow, 9–10 × 7–8 μ; stipe long, equal, whitish, glabrous, solid or stuffed, 10 cm. long, 5 mm. thick.

Type collected on a compost heap of vegetable remains and mud by the roadside at Moore Town, Jamaica, December 16, 1908, *W. A. & Edna L. Murrill 171* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

DOUBTFUL SPECIES

Pluteolus aleuriatus (Fries) P. Karst. Bidr. Finl. Nat. Folk **32**: 291. 1879. (*Agaricus aleuriatus* Fries, Obs. Myc. **1**: 49. 1815.) Reported from New York by Peck and from

Wisconsin by Bundy. Peck remarks that his *P. expansus* is probably a form of *P. aleuriatus* but the specimens I have seen do not suggest Fries' figures, which are small, with short, white stipe.

Pluteolus reticulatus (Pers.) Gill. Champ. Fr. 549. 1876. (*Agaricus reticulatus* Pers. Ic. Descr. Fung. 13. 1798.) Reported from New York by Peck rather doubtfully and from Michigan by Kauffman. The small specimens mentioned by Peck were not found at Albany.

69. MYCENA (Pers.) Roussel, Fl. Calvados ed. 2. 64. 1806.

Agaricus § *Mycena* Pers. Syn. Fung. 375. 1801.
Bolbitius Fries, Epicr. Myc. 253. 1838.

Pileus fleshy or submembranous, putrescent; lamellae free or attached, deliquescent; spores ochraceous, ferruginous, or fulvous; stipe central, slender, tubular, cartilaginous; veil none.

Type species, *Bolbitius conocephalus* (Fries) Gill.

I. SPECIES OCCURRING IN TEMPERATE NORTH AMERICA, EXCEPT THOSE CONFINED TO THE PACIFIC COAST

Pileus snow-white when young, sordid when old.	1. *M. sordida.*
Pileus white, yellowish or tawny on the disk.	2. *M. Glatfelteri.*
Pileus cinereous, yellowish on the disk.	3. *M. pulchrifolia.*
Pileus pale-yellow, reddish on the disk.	4. *M. nobilis.*
Pileus blue, green, or olivaceous, with other tints.	
Lamellae long-decurrent.	5. *M. macrorrhiza.*
Lamellae adnexed or adnate.	
Pileus bluish-green to bright-brown; spores flavous, 8–10 μ long.	6. *M. gloiocyanea.*
Pileus yellow or smoky-olive; spores ferruginous, 10–15 μ long.	7. *M. variicolor*

II. SPECIES CONFINED TO THE PACIFIC COAST

Pileus yellow, 4–7 cm. broad.	8. *M. flava.*

III. SPECIES CONFINED TO TROPICAL NORTH AMERICA

Pileus flavo-melleous or sulfur-yellow, fulvous on the disk.	
Stipe glabrous.	9. *M. jalapensis*
Stipe villose.	10. *M. villipes.*
Pileus avellaneous, brownish on the disk.	
Pileus 12 mm. broad; stipe 6 cm. long.	11. *M. brunneidisca.*
Pileus 2 cm. broad; stipe 2–4 cm. long.	12. *M. mexicana.*

1. Mycena sordida (C. G. Lloyd) Murrill.

Bolbitius sordidus C. G. Lloyd, Myc. Notes 18. 1899.

Pileus ovoid when young, explanate when mature, thin, gregarious, 3–4 cm. broad; surface pure-snow-white when young, sordid when old, glutinous, hygrophanous, margin smooth and even when young, plicate-sulcate and ragged when old; lamellae ovate, free, firm and white when young, becoming cinnamon-colored, moist and flaccid when old; spores ovoid, 9 × 6 μ; stipe pure-white, scurfy, hollow; 5 cm. long, 5 mm. thick.

TYPE LOCALITY: Cincinnati, Ohio.
HABITAT: On rotten shavings used for horse bedding.
DISTRIBUTION: Known only from the type locality.

2. Mycena Glatfelteri (Peck) Murrill.

Bolbitius Glatfelteri Peck, Bull. Torrey Club **30**: 97. 1903.

Pileus thin, conic or subcampanulate, soon expanding with the margin curving upward, sometimes umbonate, 2–3 cm. broad; surface glabrous, very viscid, white, yellowish or tawny at the center, margin widely striate; lamellae crowded, rather narrow, subventricose, free, pallid, becoming ferruginous and pulverulent; spores 12–16 × 8–10 μ; stipe equal or slightly tapering upward, hollow, slightly striate at the apex, slightly squamulose or furfuraceous when young, becoming glabrous and shining, pure-white, 5–10 cm. long, 4–5 mm. thick.

TYPE LOCALITY: Missouri.
HABITAT: On rotted manure.
DISTRIBUTION: Missouri and Illinois.

3. Mycena pulchrifolia (Peck) Murrill.

Coprinus pulchrifolius Peck, Ann. Rep. N. Y. State Mus. 29: 41. 1878.

Pileus membranous, conic or campanulate, solitary, 1.2–2.5 cm. broad; surface striate to the small, even, yellowish disk, cinereous, sprinkled with minute, whitish scales or granules; lamellae narrow, crowded, free, cinnamon-brown, often furnished with a few minute, hyaline, spine-like processes; spores ellipsoid, brown with a slight rosy tint, 7.5 μ long; stipe slender, fragile, hollow, white, 5–7.5 cm. long, scarcely 2 mm. thick.

TYPE LOCALITY: Greig, New York.
HABITAT: On the ground in woods.
DISTRIBUTION: New York and Ohio.

4. Mycena nobilis (Peck) Murrill.

Bolbitius nobilis Peck, Ann. Rep. N. Y. State Mus. 24: 71. 1872.

Pileus thin, fleshy on the disk, ovoid, becoming campanulate, cespitose, 2.5 cm. broad; surface smooth, plicate-striate, pale-yellow, the disk tinged with red, margin at length recurved and splitting; lamellae subdistant, tapering outwardly, attached, the alternate ones more narrow, pale-yellow, darker on the edges; stipe long, equal, smooth, hollow, white, striate at the apex, 7.5–12.5 cm. long, 2 mm. thick.

TYPE LOCALITY: Greig, New York.
HABITAT: On the ground in woods.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. 24: *pl. 2, f. 1–4.*

5. Mycena macrorrhiza (Berk. & Mont.) Murrill.

Bolbitius macrorrhizus Berk. & Mont.; Mont. Syll. Crypt. 133. 1856.

Pileus convex, depressed at the center or umbonate, fleshy, 2 cm. broad; surface viscid, rough when dry, blue to rose-colored; lamellae long-decurrent, attenuate, yellow or vitelline; spores oblong, 12–13 μ long; stipe cartilaginous, rosy, stuffed, long-radicate, 10 cm. long.

TYPE LOCALITY: Columbus, Ohio.
HABITAT: On the ground.
DISTRIBUTION: Known only from the type locality.

6. Mycena gloiocyanea (Atk.) Murrill.

Bolbitius gloiocyaneus Atk. Ann. Myc. 6: 54. 1908.

Pileus conic, expanding to revolute, 2–5 cm. broad; surface wrinkled, exceedingly viscid in all stages, bluish-green with dark-brown center when young, varying much in dark-green and blue-green colors but bright-brown in age, margin striate when young; spores ellipsoid, smooth, ochraceous, 8–10 $\times$ 5–6 μ; stipe viscid, concolorous.

TYPE LOCALITY: Storrs, Connecticut.
HABITAT: On old sawdust, chips, or sticks.
DISTRIBUTION: Maine, Vermont, and Connecticut.

7. Mycena variicolor (Atk.) Murrill.

Bolbitius variicolor Atk. Stud. Am. Fungi 164. 1900.

Pileus ovoid to conic when young, becoming convex, then expanded, and finally with a broad umbo, solitary, 2–4 cm. broad; surface very viscid when young, with the pellicle easily separable, smoky-olive to fuliginous, darker when young, becoming paler as the pileus expands, but always darker on the umbo, sometimes coarsely fibrillose-reticulate, margin finely striate; context yellow, becoming bright-olive to fuliginous with age; lamellae adnate to adnexed, becoming free, rounded behind, yellow, becoming ferruginous, sometimes finely fimbriate on the edges; spores ellipsoid, smooth, ferruginous, 10–15 $\times$ 6–8 μ; stipe cylindric to terete, tapering above, hollow, clothed with numerous, small, yellow, floccose scales, sulfur-colored and ochraceous, becoming paler and even assuming a light-brown tint with age, 4–10 cm. long, 3–8 mm. thick.

TYPE LOCALITY: Ithaca, New York.
HABITAT: On freshly manured grass plots.
DISTRIBUTION: New York, New Jersey, and Virginia.
ILLUSTRATIONS: Atk. Stud. Am. Fungi ed. 1. *f. 154;* ed. 2. *f. 158.*

8. Mycena flava Murrill, sp. nov.

Pileus very fragile, conic to fully expanded, broadly umbonate, cespitose, 4–7 cm. broad; surface viscid, usually glabrous, bright-lemon-yellow to pale-sordid-yellow, margin entire, concolorous; context pale-lemon-yellow, without characteristic taste or odor; lamellae free, broad, crowded, ventricose, pale-brown or fulvous at maturity; spores ellipsoid, $14 \times 8\ \mu$; stipe somewhat tapering upward, white, hollow, glabrous above, fibrous-shaggy below, 6–10 cm. long, 8–12 mm. thick.

Type collected on decayed horse manure in an old pasture at Stanford University, California, November 30, 1901, *C. F. Baker 161* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Vicinity of Stanford University, California.

9. Mycena jalapensis Murrill, Mycologia 4: 73. 1912.

Pluteolus tropicalis Murrill, Mycologia 4: 74. 1912.
Bolbitius jalapensis Murrill, Mycologia 4: 332. 1912.

Pileus conic to expanded, thin, umbonate, gregarious, 2–5 cm. broad; surface viscid, striate, flavo-melleous, fulvous on the umbo; lamellae free, narrow, crowded, becoming ferruginous, at length deliquescent; spores ellipsoid or ovoid, smooth, flavo-luteous under a microscope, $12–14 \times 6–8\ \mu$; stipe cylindric, equal, hollow, glabrous, white or sulfureous. 6–8 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Jalapa, Vera Cruz, Mexico.
HABITAT: Among chips in woods or on rotting grass in fields.
DISTRIBUTION: Mexico, Cuba, and Grenada.

10. Mycena villipes (Fries) Murrill, Mycologia 4: 73. 1912.

Bolbitius villipes Fries, Nova Acta Soc. Sci. Upsal. III. 1: 28. 1851.

Pileus submembranous, convex to expanded, 4 cm. broad; surface shining, sulfur-yellow, the disk fulvous, smooth, margin sulcate, radiate-striate; lamellae yellow; stipe equal, hollow, pilose-villose, darker than the pileus, helvolous, 5 cm. long, 2 mm. thick.

TYPE LOCALITY: Naranjo, Costa Rica.
HABITAT: On manured ground.
DISTRIBUTION: Known only from the type locality.

11. Mycena brunneidisca Murrill, sp. nov.

Pileus small, convex to expanded and at length somewhat depressed, not umbonate, gregarious, 12 mm. broad; surface smooth, glabrous, not striate, brownish-isabelline, brown or fuliginous on the disk, margin entire, concolorous; lamellae adnexed or adnate, crowded, rather broad, ferruginous, entire and concolorous on the edges; spores ellipsoid, smooth, ferruginous, $8–9 \times 5–7\ \mu$; stipe slender, somewhat bulbous, smooth, glabrous, white, 6 cm. long, 1–2 mm. thick.

Type collected on the ground in rich soil between Port Antonio and Manchioneal, Jamaica, December 17, 1908, *W. A. Murrill 223* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

12. Mycena mexicana Murrill, Mycologia 4: 73. 1912.

Bolbitius mexicanus Murrill, Mycologia 4: 332. 1912.

Pileus subcespitose, conic to expanded, umbonate, about 2 cm. broad; surface striate, avellaneous, fuliginous on the umbo, subglabrous, dry; lamellae adnexed, rather broad, becoming ferruginous and at length slightly deliquescent; spores ovoid, smooth, ochroleucous under a microscope, usually uninucleate, $8–9 \times 4.5–5\ \mu$; stipe slender, white, glabrous, cylindric, equal, hollow, 3–4 cm. long, 1 mm. thick.

TYPE LOCALITY: Xuchiles, near Cordoba, Vera Cruz, Mexico.
HABITAT: On decayed wood in coffee plantations.
DISTRIBUTION: Known only from the type locality.

DOUBTFUL AND EXCLUDED SPECIES

Bolbitius conocephalus (Bull.) Gill. Champ. Fr. 595. 1878. (*Agaricus conocephalus* Bull. Herb. Fr. *pl. 563, f. 1;* hyponym. 1791; Pers. Syn. Fung. 427. 1801.) Reported from North Carolina and California, but perhaps confused with species of *Galerula*.

Bolbitius fragilis Fries, Epicr. Myc. 254. 1838. Reported from various parts of North America. The specimens I have seen represented a variety of things and had to be disregarded.

Bolbitius tener Berk. Outl. Brit. Fungol. 183. 1860. Reported from New York, Indiana, and elsewhere, but the specimens so named do not appear to be distinct from *Galerula crispa*.

Bolbitius titubans (Bull.) Fries, Epicr. Myc. 254. 1838. (*Agaricus titubans* Bull. Herb. Fr. *pl. 425, f. 1.* 1788.) Reported from various parts of the United States, but I have seen no American specimens. The spores are described as incarnate-salmon-colored, which would place the species among the PLUTEANAE.

Bolbitius vitellinus (Pers.) Fries, Epicr. Myc. 254. 1838. (*Agaricus vitellinus* Pers. Syn. Fung. 402. 1801. Not *A. vitellinus* Batsch, 1783.) Reported from North Carolina by Schweinitz.

70. PHYLLOPORUS Quél. Fl. Myc. Fr. 409. 1888.

Pileus thick, fleshy, putrescent, solitary, tomentose; lamellae concrete with the pileus, long-decurrent, anastomosing behind; spores ochraceous, much elongated; stipe central or nearly so, fleshy; veil none.

Type species, *Gomphidius rhodoxanthus* (Schw.) Sacc.

1. **Phylloporus rhodoxanthus** (Schw.) Bres. Fungi Trid. 2: 95. 1900.

Agaricus rhodoxanthus Schw. Schr. Nat. Ges. Leipzig 1: 83. 1822.
Paxillus flavidus Berk. Lond. Jour. Bot. 6: 315. 1847.
? *Paxillus solidus* Rav.; Berk. & Curt. Ann. Mag. Nat. Hist. II. 12: 423. 1853.
Gomphidius rhodoxanthus Sacc. Syll. Fung. 5: 1139. 1887.

Pileus thick, firm, convex to expanded, scattered, 4–10 cm. broad; surface densely velvety-tomentose, yellowish, reddish, ferruginous, or olivaceous, margin not striate; context yellow, the taste mild; lamellae simple, forking or anastomosing, long-decurrent, subdistant, of medium width, bright-yellow, at length becoming brownish-yellow; spores oblong-ellipsoid, yellow under the microscope, olivaceous in mass when fresh, 10–14 × 4–6 μ; stipe cylindric or tapering downward, yellow or reddish, solid, subtomentose above, subglabrous or glutinous-scaly below, 5–12 cm. long, 6–10 mm. thick.

TYPE LOCALITY: North Carolina.
HABITAT: On exposed banks or in open places in woods.
DISTRIBUTION: Maine to Alabama and west to Missouri; also in Europe.
ILLUSTRATIONS: Atk. Stud. Am. Fungi ed. 1. *f. 156;* ed. 2. *f. 160;* Bull. N. Y. State Mus. 131: *pl. 116, f. 8–11;* Hard, Mushr. *f. 234;* Ricken, Blätterp. Deutschl. *pl. 28, f. 1.*

71. GYMNOPILUS P. Karst. Bidr. Finl. Nat. Folk 32: 400. 1879.

Agaricus § *Flammula* Fries, Syst. Myc. 1: 250. 1821.
Flammula Quél. Champ. Jura Vosg. 97. 1872. Not *Flammula* DC. 1818.
Gymnocybe P. Karst. Bidr. Finl. Nat. Folk 32: 412. 1879.
Ryssospora Fayod, Ann. Sci. Nat. VII. 9: 361. 1889.
Visculus Earle, Bull. N. Y. Bot. Gard. 5: 437. 1909.

Pileus fleshy, putrescent, solitary or cespitose, mostly wood-loving, usually dry or moist, viscid in several species; lamellae usually adnate or short-decurrent, and bright-ferruginous at maturity; spores ochraceous, ferruginous, or fulvous; stipe central or nearly so, fleshy or fibrous, sometimes woody; veil often present in young stages, but evanescent, sometimes leaving an annular trace and rarely a small continuous annulus as in *Pholiota*.

Type species, *Flammula Liquiritae* (Pers.) Quél.

I. SPECIES OCCURRING IN TEMPERATE NORTH AMERICA, EXCEPT THOSE CONFINED TO THE PACIFIC COAST

Species growing among sphagnum in swamps.	1. *G. sphagnicola.*
Species growing on the ground.	
Pileus glabrous.	
Pileus dry or moist, not viscid.	
Stipe 1–2.5 cm. long.	2. *G. anomalus.*
Stipe 2.5–5 cm. long.	
Stipe 2–4 mm. thick.	3. *G. velatus.*
Stipe 4–6 mm. thick.	
Pileus grayish.	4. *G. alienus.*

Pileus ferruginous.	5. *G. rigidus.*
Stipe 8 mm. thick; pileus fulvous.	6. *G. farinaceus.*
Stipe 5–7.5 cm. long.	
Stipe 4–6 mm. thick.	7. *G. Hallianus.*
Stipe 6–12 mm. thick.	8. *G. edulis.*
Pileus distinctly viscid.	
Pileus dingy-yellowish or rufescent.	9. *G. squalidus.*
Pileus yellowish-red, paler on the margin.	10. *G. highlandensis.*
Pileus reddish-isabelline to orange or testaceous.	11. *G. carbonarius.*
Pileus pale-yellow, tinged with reddish-tawny or brownish hues at the center.	12. *G. spumosus.*
Pileus brownish-yellow, reddish-brown at the center.	
Stipe 2–4 cm. long.	13. *G. condensus.*
Stipe 5–10 cm. long.	
Stipe 3–6 mm. thick.	14. *G. alabamensis.*
Stipe 6–10 mm. thick.	15. *G. graveolens.*
Pileus reddish-brown, darker on the disk.	16. *G. fibrillosipes.*
Pileus dark-rich-chestnut; context dark-yellow.	17. *G. castaneus.*
Pileus slightly viscid and somewhat fibrillose, ochraceous-yellow, brown at the center.	18. *G. brunneodiscus.*
Pileus dry or somewhat viscid, strigose-ciliate, white.	19. *G. tricholoma.*
Species growing on logs, stumps, or about the bases of trees.	
Pileus 1–2.5 cm. broad.	
Pileus glabrous.	
Pileus dry or moist, not viscid.	
Stipe isabelline.	20. *G. autumnalis.*
Stipe yellowish-red.	21. *G. geminellus.*
Stipe reddish-brown.	22. *G. bellulus.*
Pileus distinctly viscid.	
Stipe 2 mm. thick.	23. *G. pusillus.*
Stipe 3–4 mm. thick.	24. *G. viscidus.*
Pileus squamulose.	
Surface ferruginous.	25. *G. squamulosus.*
Surface fulvous.	26. *G. fagicola.*
Pileus 2.5–6 cm. broad.	
Pileus glabrous.	
Pileus dry or moist, not viscid.	
Pileus yellow.	27. *G. flavidellus.*
Pileus brown or reddish-brown.	
Lamellae adnate.	28. *G. praecox.*
Lamellae long-decurrent.	29. *G. unicolor.*
Pileus viscid.	
Pileus bright-yellow, darker and reddish on the disk.	30. *G. piceinus.*
Pileus uniformly yellow.	31. *G. alnicola.*
Pileus fibrillose or squamulose.	
Pileus dry or moist, not viscid.	
Stipe 2–3.5 cm. long.	
Pileus pallid tinged with pink.	32. *G. pulchrifolius.*
Pileus ferruginous or fulvous.	
Stipe glabrous or nearly so, 1.5–3 mm. thick.	33. *G. granulosus.*
Stipe fibrillose.	
Stipe 4 mm. thick, chrome-yellow.	34. *G. aromaticus.*
Stipe 4–8 mm. thick, dingy-yellow.	35. *G. eccentricus.*
Stipe 4–8 cm. long.	36. *G. penetrans.*
Pileus distinctly viscid.	
Stipe whitish.	37. *G. subfulvus.*
Stipe yellow, purplish at the base.	38. *G. polychrous.*
Pileus 6–10 cm. broad.	
Stipe 2.5–3.5 cm. long.	39. *G. multifolius.*
Stipe 5–12 cm. long.	
Pileus glabrous.	40. *G. ludovicianus.*
Pileus not glabrous.	
Pileus whitish or buff.	41. *G. lentus.*
Pileus yellowish-brown.	42. *G. Underwoodii.*
Pileus 10–15 cm. broad.	43. *G. magnus.*

II. Species occurring on the Pacific coast

Species growing on the ground.	
Pileus glabrous.	
Pileus dry or moist, not viscid.	
Pileus 1–2.5 cm. broad.	44. *G. fulvellus.*
Pileus 3–7 cm. broad.	
Stipe 3–4 mm. thick.	45. *G. californicus.*
Stipe 5–7 mm. thick.	46. *G. pallidus.*
Pileus distinctly viscid.	
Pileus isabelline with an incarnate tint, 2 cm. broad.	47. *G. viscidissimus.*
Pileus pale-yellow, with bay or brownish disk.	
Stipe 2–5 mm. thick.	12. *G. spumosus.*

Stipe 7–11 mm. thick. — 48. *G. spinulifer.*
Pileus testaceous-isabelline to orange; stipe 2–4 mm. thick. — 11. *G. carbonarius.*
Pileus red to bay or reddish-cinnamon; stipe 4–8 mm. thick.
Lamellae ochraceous. — 49. *G. subcarbonarius.*
Lamellae fulvous to brown. — 50. *G. foedatus.*
Pileus fibrillose to squamulose.
Stipe 4 mm. thick; pileus flavo-melleous. — 51. *G. ornatulus.*
Stipe 6–10 mm. thick; pileus grayish-brown. — 52. *G. Abramsii.*
Stipe 13 mm. thick; pileus castaneous-fulvous. — 53. *G. longisporus.*
Species growing on dead logs or stumps.
Pileus glabrous.
Pileus dry or moist, not viscid.
Pileus 1–2.5 cm. broad.
Pileus fulvous. — 22. *G. bellulus.*
Pileus latericious. — 54. *G. oregonensis.*
Pileus 3–5 cm. broad.
Stipe 3–5 mm. thick. — 27. *G. flavidellus.*
Stipe 10–15 mm. thick. — 55. *G. vialis.*
Pileus 5–10 cm. broad.
Pileus green. — 56. *G. subviridis.*
Pileus isabelline. — 57. *G. permollis.*
Pileus ferruginous or fulvous. — 58. *G. echinulisporus.*
Pileus viscid.
Pileus 3–5 cm. broad.
Pileus melleous with fulvous center. — 59. *G. subflavidus.*
Pileus ochroleucous with testaceous center. — 60. *G. laeticolor.*
Pileus 9 cm. broad. — 61. *G. latus.*
Pileus floccose or squamulose.
Pileus cremeous with castaneous umbo. — 62. *G. decoratus.*
Pileus golden-tawny or ferruginous-fulvous. — 36. *G. penetrans.*

III. Species occurring in tropical North America

Species growing on the ground.
Stipe 2–4 mm. thick.
Surface of pileus dry. — 63. *G. hypholomoides.*
Surface of pileus viscid. — 11. *G. carbonarius.*
Stipe 10 mm. thick. — 64. *G. jalapensis.*
Species growing on dead logs and stumps.
Pileus glabrous.
Pileus yellowish-olive; stipe 1.5 cm. long. — 65. *G. olivaceus.*
Pileus yellowish-orange to greenish; stipe 4–7 cm. long. — 66. *G. aureoviridis.*
Pileus melleous, ochraceous, or luteous. — 27. *G. flavidellus.*
Pileus ferruginous to fulvous. — 67. *G. chrysotrichoides.*
Pileus ferruginous-vinous. — 68. *G. helvoliceps.*
Pileus red tinged with vinous. — 69. *G. vinicolor.*
Pileus fibrillose to squamulose, sometimes becoming more or less glabrous with age.
Pileus golden-yellow.
Stipe 2.5 cm. long. — 70. *G. chrysotrichus.*
Stipe 8 cm. long.
Lamellae decurrent. — 71. *G. chrysopellus.*
Lamellae adnate. — 72. *G. aureobrunneus.*
Pileus pale-yellow to ferruginous or ferruginous-orange.
Pileus 2–4 cm. broad, rarely reaching 6 cm.
Pileus umbilicate or depressed.
Stipe 2–2.5 cm. long. — 73. *G. hispidus.*
Stipe 3–5 cm. long. — 74. *G. palmicola.*
Pileus convex to expanded.
Stipe 2–4 cm. long.
Pileus ochraceous.
Context with mild taste. — 75. *G. pholiotoides.*
Context with bitter taste.
Margin striate. — 76. *G. parvulus.*
Margin not striate. — 77. *G. hispidellus.*
Pileus ferruginous. — 78. *G. bryophilus.*
Pileus ferruginous-orange. — 79. *G. subpenetrans.*
Stipe 4–7 cm. long.
Pileus ochraceous. — 80. *G. Nashii.*
Pileus pale-ferruginous. — 81. *G. Earlei.*
Pileus 6–10 cm. broad.
Pileus becoming deeply depressed. — 82. *G. depressus.*
Pileus not becoming deeply depressed.
Lamellae decurrent. — 83. *G. tenuis.*
Lamellae adnate. — 84. *G. areolatus.*
Pileus fulvous. — 36. *G. penetrans.*
Pileus latericious. — 85. *G. lateritius.*

1. Gymnopilus sphagnicola (Peck) Murrill.

Flammula sphagnicola Peck, Bull. N. Y. State Mus. 167: 43. 1913.

Pileus fleshy, thin, convex or nearly plane, obtuse or umbonate, 1–2.5 cm. broad; surface glabrous, viscid, yellowish, with the center reddish or reddish-brown, often spotted; context white; lamellae thin, narrow, crowded, adnate or with a decurrent tooth, whitish, becoming cinnamon-colored; spores ellipsoid, uninucleate, 8–10 × 4–6 μ; stipe slender, equal or slightly enlarged at the base, hollow, whitish, slightly white-fibrillose at the apex, with a white tomentum at the base, 2.5–3.5 cm. long, 1–3 mm. thick.

TYPE LOCALITY: Amesbury, Massachusetts.
HABITAT: Among sphagnum in swamps.
DISTRIBUTION: Known only from the type locality.

2. Gymnopilus anomalus (Peck) Murrill.

Flammula anomala Peck, Bull. Torrey Club 22: 202. 1895.

Pileus deeply umbilicate or infundibuliform, often irregular, commonly cespitose, about 2.5 cm. broad; surface glabrous, whitish; lamellae narrow, crowded, decurrent, pale-ferruginous; spores globose, brownish-ferruginous, 6 μ; stipe short, irregular, whitish, 1–2.5 cm. long.

TYPE LOCALITY: Trexlertown, Pennsylvania.
HABITAT: On the ground.
DISTRIBUTION: Known only from the type locality.

3. Gymnopilus velatus (Peck) Murrill.

Flammula velata Peck, Bull. Torrey Club 30: 96. 1903.

Pileus fleshy, thin toward the margin, convex, 2–4 cm. broad; surface moist, sulfur-yellow, reddish or orange at the center, margin persistently incurved; context yellow or greenish-yellow, the taste mild; lamellae arcuate, adnate or slightly decurrent, 5 mm. wide, pale-yellow, becoming rusty-brown or snuff-colored; spores ellipsoid, 5–8 μ long; stipe short, slender, flexuous, fibrillose, sulfur-yellow above, brownish and somewhat tomentose below, solid, 2.5–4.5 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Idaho.
HABITAT: In woods along small streams.
DISTRIBUTION: Known only from the type locality.

4. Gymnopilus alienus (Peck) Murrill.

Flammula aliena Peck, Bull. Torrey Club 26: 65. 1899.

Pileus thin, flexible, broadly convex, umbilicate, gregarious, 3–5 cm. broad; surface dry, glabrous, grayish or pale-grayish-brown, margin slightly striate when old; context white, fibrous; lamellae thin, subdistant, arcuate, decurrent, ochraceous-brown; spores ferruginous-brown, globose, 5 μ in diameter; stipe firm, fibrous-striate, solid, slightly tapering upward, concolorous, covered at the base with a dense white tomentum, 5 cm. long, 4–6 mm. thick.

TYPE LOCALITY: Mt. Gretna, Pennsylvania.
HABITAT: On partly buried anthracite coal.
DISTRIBUTION: Known only from the type locality.

5. Gymnopilus rigidus (Peck) Murrill.

Flammula rigida Peck, Ann. Rep. N. Y. State Mus. 50: 104. 1897.

Pileus thin, rather firm and rigid, convex, becoming nearly plane or centrally depressed, gregarious, 2.5–3.5 cm. broad; surface glabrous, hygrophanous, rusty-tawny or subferruginous when moist, buff or grayish-buff when dry, margin sometimes wavy; context concolorous; lamellae moderately crowded, adnate, creamy-white, becoming rusty-tan-colored or subferruginous; spores broadly ellipsoid, 7.5–8.5 × 4–5 μ; stipe equal or nearly so, tough, slightly striate, concolorous, with a compact, white tomentum on the lower part or at the base, 2.5–5 cm. long, 4–6 mm. thick.

TYPE LOCALITY: Adirondack Mountains, New York.
HABITAT: On chip dirt about an old lumber camp.
DISTRIBUTION: New York.

6. Gymnopilus farinaceus Murrill, Mycologia 7: 222. 1915.

Flammula farinacea Murrill, Mycologia 9: 40. 1917.

Pileus convex to plane and at length upturned at the margin, solitary, 5 cm. broad; surface smooth, glabrous, somewhat hygrophanous, isabelline or pale-fulvous, fulvous on the disk; context white, thin, the taste decidedly sweet and farinaceous, the odor not characteristic; lamellae adnate to adnexed, rounded behind, very broad, subtriangular, purplish-brown, rather crowded; spores ellipsoid, smooth, ferruginous-melleous, 4–5 × 3–4 μ; stipe cylindric, equal, except at the expanded base, smooth, dry, glabrous, straw-colored, hollow, about 5 cm. long and 8 mm. thick.

TYPE LOCALITY: New York Botanical Garden.
HABITAT: On the ground in deciduous woods.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Mycologia 7: *pl. 163, f. 3.*

7. Gymnopilus Hallianus (Peck) Murrill.

Agaricus Hallianus Peck, Ann. Rep. N. Y. State Cab. **23**: 90. 1872.
Flammula Halliana Sacc. Syll. Fung. **5**: 822. 1887.

Pileus thin, hemispheric or convex, 2.5–5 cm. broad; surface glabrous, hygrophanous, subferruginous when moist, dull-yellow when dry, margin obscurely striatulate when moist; lamellae crowded, subarcuate, slightly decurrent, tapering to a point at the outer extremity and ceasing before reaching the margin, ferruginous; spores ferruginous, 7.5–10 × 5–6 μ; stipe equal, slightly fibrillose, hollow, reddish-brown, 5–7.5 cm. long, 4–6 mm. thick.

TYPE LOCALITY: Bethlehem, New York.
HABITAT: In pastures.
DISTRIBUTION: Known only from the type locality.

8. Gymnopilus edulis (Peck) Murrill.

Flammula edulis Peck, Bull. Torrey Club **24**: 142. 1897.

Pileus fleshy, convex, obtuse, cespitose, 5–7.5 cm. broad; surface glabrous, moist, brown, grayish-brown, or alutaceous-brown, sometimes rimose; context whitish, slightly bitter, edible; lamellae rather broad, crowded, decurrent, bright-tan-colored, becoming brownish-ferruginous; spores subellipsoid, 12.5 × 5–6 μ; stipe equal, stuffed or hollow, brown, 5–7.5 cm. long, 6–12 mm. thick.

TYPE LOCALITY: Haddonfield, New Jersey.
HABITAT: Grassy ground on street borders.
DISTRIBUTION: Known only from the type locality.

9. Gymnopilus squalidus (Peck) Murrill.

Flammula squalida Peck, Ann. Rep. N. Y. State Mus. **44**: 131 (19). 1891.

Pileus fleshy, convex or plane, firm, often very cespitose, 2.5–3.5 cm. broad; surface viscose, glabrous, dingy-yellowish or rufescent; context whitish but colored similar to the surface under the separable cuticle; lamellae rather broad, adnate, pallid, becoming dark-ferruginous; spores brownish-ferruginous, 7.5 × 4 μ; stipe slender, generally flexuose, hollow, fibrillose, pallid or brownish, pale-yellow at the apex when young, 3.5–7.5 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Carrollton, New York.
HABITAT: In bushy and swampy places, especially alder swamps.
DISTRIBUTION: New York and Massachusetts.

10. Gymnopilus highlandensis (Peck) Murrill.

Agaricus highlandensis Peck, Ann. Rep. N. Y. State Mus. **24**: 67. 1872.
Agaricus ascophorus Peck, Ann. Rep. N. Y. State Mus. **24**: 68. 1872.
Naucoria highlandensis Sacc. Syll. Fung. **5**: 845. 1887.
Flammula highlandensis Peck, Ann. Rep. N. Y. State Mus. **50**: 138. 1897.
Naucoria subvelosa Murrill, Mycologia **4**: 164. 1912.
Hebeloma Peckii House, Bull. N. Y. State Mus. 179: 27. 1915.

Pileus fleshy, thin, hemispheric or convex, becoming nearly plane, 1.2–2.4 cm. broad; surface glabrous, viscid, yellowish-red, commonly paler or yellowish on the margin, which is

inflexed; context white or whitish, sometimes tinged with yellow under the tough, separable cuticle; lamellae crowded, rounded behind or adnate, sometimes with a decurrent tooth, pallid or yellowish when young, becoming ferruginous; spores ellipsoid, 6–8 × 3–5 μ; stipe equal, stuffed or hollow, fibrillose and minutely floccose-squamulose, yellowish, 2.5–5 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Near Highland Falls, New York.
HABITAT: On burnt ground or damp earth.
DISTRIBUTION: New England to New Jersey and west to Michigan.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **24**: *pl. 3, f. 1;* Mycologia **4**: *pl. 68, f. 2.*

11. Gymnopilus carbonarius (Fries) Murrill, Mycologia 4: 256. 1912.

Agaricus carbonarius Fries, Obs. Myc. **2**: 33. 1818.
Flammula carbonaria Quél. Champ. Jura Vosg. 232. 1872.

Pileus convex to subplane, gregarious to subcespitose, 2–4 cm. broad; surface viscid, smooth, glabrous, testaceous-isabelline or varying from lighter yellow to orange or testaceous; margin inflexed when young, with a slight, stramineous, filamentous, evanescent veil; context thin, white or stramineous, the taste sweetish, the odor pleasant; lamellae squarely adnate or with a short decurrent tooth, plane or arcuate, broad, crowded, inserted, pale-yellow to fulvous; spores ellipsoid, smooth, fulvous in mass, 7–8 × 3–4.5 μ; cystidia abundant, 22–28 × 10–12 μ; stipe equal or slightly enlarged above, hollow or stuffed, white or cremeous, adorned below with reddish-brown fibrils, glabrous or granulose at the apex, about 5 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Europe.
HABITAT: Usually in charred ground or on wood partly burned.
DISTRIBUTION: Throughout temperate North America; southern Florida and the mountains of Jamaica; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 442* (*475*); Gill. Champ. Fr. *pl. 364* (*283*); Lucand, Champ. Fr. *pl. 60;* Mycologia **4**: *pl. 68, f. 5;* Pat. Tab. Fung. **1**: *f. 111;* Ricken, Blätterp. Deutschl. *pl. 58, f. 3.*

12. Gymnopilus spumosus (Fries) Murrill, Mycologia 4: 254. 1912.

Agaricus spumosus Fries, Syst. Myc. **1**: 252. 1821.
Flammula spumosa P. Karst. Bidr. Finl. Nat. Folk **32**: 404. 1879.

Pileus fleshy, thin, convex or nearly plane, obtuse or umbonate, gregarious or cespitose, 2.5–5 cm. broad; surface glabrous, viscid, pale-yellow, tinged with reddish-tawny or brownish hues at the center; context pale-yellow or greenish-yellow; lamellae thin, crowded, adnate, pale-yellow when young, becoming ferruginous or fulvous; spores ellipsoid, dark-ferruginous, 7.5 × 4–5 μ; stipe rather slender, equal or tapering at the base, fibrillose, hollow, yellowish, generally becoming brownish or ferruginous toward the base, 3.5–7.5 cm. long, 2–5 mm. thick.

TYPE LOCALITY: Europe.
HABITAT: On the ground or rarely on decaying wood.
DISTRIBUTION: Canada to Alabama and west to Washington and California; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 476* (*474*); Fries, Ic. Hymen. *pl. 116, f. 3;* Ricken, Blätterp. Deutschl. *pl. 57, f. 5.*

13. Gymnopilus condensus (Peck) Murrill.

Flammula condensa Peck, Bull. Torrey Club **33**: 217. 1906.

Pileus thin, convex or nearly plane, often irregular from its densely cespitose mode of growth, usually umbonate, 2–3 cm. broad; surface very viscid, brownish-yellow, the umbo reddish-brown or chestnut-colored; context white, often tinged with yellow; lamellae moderately broad, subdistant, adnate or slightly decurrent, sometimes rugosely wrinkled, yellowish becoming brownish-ferruginous; spores ellipsoid, 8–10 × 4–5 μ; stipe equal, hollow, yellowish at the apex, pallid or brownish toward the base, 2–4 cm. long, 2–3.5 mm. thick.

TYPE LOCALITY: Washington, D. C.
HABITAT: In clearings in pine woods and on stony hills.
DISTRIBUTION: Known only from the type locality.

14. Gymnopilus alabamensis Murrill, sp. nov.

Pileus convex to expanded, slightly umbonate, gregarious or subcespitose, 2–5 cm. broad; surface smooth, viscid, glabrous, pale-brownish-yellow, reddish-brown on the disk, margin entire, concolorous; context thin, yellow, with mild taste; lamellae adnate, subdistant to distant, rather narrow, tawny-yellow, becoming darker, entire and concolorous on the edges; spores ellipsoid, 8 × 4 μ; stipe long, equal, smooth, glabrous, yellow above, fulvous below, 5–10 cm. long, 3–6 mm. thick.

Type collected on clay banks, possibly attached to buried sticks or roots, at Auburn, Alabama, December 15, 1900, *F. S. Earle* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

15. Gymnopilus graveolens (Peck) Murrill.

Flammula graveolens Peck, Bull. N. Y. State Mus. 150: 54. 1911.

Pileus fleshy, broadly convex or nearly plane, sometimes slightly depressed at the center, sometimes cespitose, 2.5–7 cm. broad; surface viscid, glabrous or very obscurely innately fibrillose, reddish-brown or yellowish-brown, at first paler on the margin, the thin pellicle subseparable; context pale-yellow, the odor strong, earthy; lamellae thin, moderately crowded, adnate or slightly decurrent, pale-yellow, becoming subferruginous; spores ellipsoid, brownish-ferruginous, 6–8 × 4–5 μ; stipe equal or tapering at the base, solid or with a very narrow cavity, silky-fibrillose, pale-yellow without and within, becoming brownish at the base, 5–7 cm. long, 6–10 mm. thick; veil floccose or webby, pale-yellow, visible in the young plant, soon disappearing.

TYPE LOCALITY: West Gloucester, Massachusetts.
HABITAT: Under pine trees.
DISTRIBUTION: Massachusetts and New York.

16. Gymnopilus fibrillosipes Murrill, sp. nov.

Pileus fleshy, rather thick, convex to expanded, obtuse or nearly so, cespitose, 3–6 cm. broad; surface viscd, glabrous, reddish-brown, darker on the disk, margin not striate, at first incurved and appendiculate; context yellow, slightly acrid; lamellae adnate or subdecurrent, crowded, rather broad, plane, yellow to cinnamon-colored; spores oblong-ellipsoid, cinnamon, about 8 × 4 μ; stipe cylindric or tapering toward the base, solid, densely fibrillose, especially when young, yellow, at length becoming brownish, bright-yellow within, 4–8 cm. long, 4–8 mm. thick; veil of tough, yellowish fibers.

Type collected on the ground in pine woods at the margin of a swamp north of Auburn, Alabama, January 6, 1900, *F. S. Earle* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

17. Gymnopilus castaneus Murrill, sp. nov.

Pileus convex to subexpanded, subumbonate, solitary, 3–5 cm. broad; surface viscid when moist, the pellicle separable, dark-rich-chestnut, margin not striate, incurved; context dark-yellow, mild; lamellae decurrent, subdistant, broad, subconcolorous; spores dark-ferruginous, ellipsoid, 7–8 × 4 μ; stipe cylindric, minutely fibrillose to glabrous, solid, yellowish-brown, concolorous in dried specimens, 4–5 cm. long, 5 mm. thick.

Type collected on the ground in pine woods at Auburn, Alabama, December 16, 1900, *F. S. Earle* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

18. Gymnopilus brunneodiscus (Peck) Murrill.

Flammula brunneodisca Peck, Bull. N. Y. State Mus. 167: 42. 1913.

Pileus fleshy, thin, broadly convex or nearly plane, umbonate, cespitose, 2.5–6 cm. broad; surface slightly viscid, with a separable pellicle, slightly innately fibrillose, ochraceous-yellow, brown at the center; context white; lamellae thin, crowded, adnate with a decurrent tooth,

pale-yellow, becoming rusty-brown; spores ellipsoid, 6–8 × 4–5 μ; stipe slender, equal, solid, glabrous, pale-yellow without and within, paler at the apex, 2–3 cm. long, 4–6 mm. thick.

TYPE LOCALITY: Waltham, Massachusetts.
HABITAT: Probably in damp soil.
DISTRIBUTION: Known only from the type locality.

19. Gymnopilus tricholoma (Alb. & Schw.) Murrill.

Agaricus tricholoma Alb. & Schw. Consp. Fung. 188. 1805.
Flammula tricholoma Quél. Ench. Fung. 232. 1872.
Inocybe tricholoma Sacc. Syll. Fung. **5**: 790. 1887.
Paxillus strigosus Peck, Bull. Buffalo Soc. Nat. Sci. **1**: 56. 1873.
? *Paxillus microsporus* Peck, Bull. N. Y. State Mus. 157: 51. 1912.

Pileus convex to depressed, solitary, 2.5–4 cm. broad; surface dry or slightly viscid, white or whitish, decorated with white, appressed fibrils, margin concolorous, strigose-ciliate; lamellae decurrent, crowded, narrow, whitish or clay-colored to avellaneous, becoming darker on drying; spores broadly ellipsoid or subglobose, echinulate, 4 × 3 μ; cystidia none; stipe equal, white or pallid, smooth, 2–4 cm. long and 3–6 mm. thick.

TYPE LOCALITY: Europe.
HABITAT: Among leaves, mosses, or grass in woods or groves.
DISTRIBUTION: Northern New York, Massachusetts, and New Jersey; also in Europe.
ILLUSTRATION: Gill. Champ. Fr. *pl. 363* (*286*).

20. Gymnopilus autumnalis (Peck) Murrill.

Agaricus autumnalis Peck, Ann. Rep. N. Y. State Cab. **23**: 92. 1872.
Naucoria autumnalis Sacc. Syll. Fung. **5**: 834. 1887.

Pileus thin, fleshy, convex, often cespitose, 1.2–2.5 cm. broad; surface smooth, hygrophanous, watery-cinnamon when moist, dull-yellow when dry, margin striatulate when moist; context poisonous; lamellae crowded, slightly emarginate, spuriously decurrent-toothed, easily separating from the stipe, yellowish, becoming cinnamon; stipe slender, equal, hollow, fibrillose, paler than the pileus; 2.5–5 cm. long; veil slight, evanescent or persisting as an imperfect annulus.

TYPE LOCALITY: North Greenbush, New York.
HABITAT: On decayed wood in woods.
DISTRIBUTION: Northern New York.

21. Gymnopilus geminellus (Peck) Murrill.

Agaricus geminellus Peck, Bull. Buffalo Soc. Nat. Sci. **1**: 51. 1873.
Naucoria geminella Sacc. Syll. Fung. **5**: 841. 1887.

Pileus convex, 1–2 cm. broad; surface even, dry, firm, yellowish-red, the margin paler; context white; lamellae crowded, emarginate, pale-yellow; spores 8 × 5 μ; stipe equal, smooth, concolorous, containing a white pith or a small cavity, 2 cm. or more long.

TYPE LOCALITY: Croghan, New York.
HABITAT: On rotten wood.
DISTRIBUTION: New York.

22. Gymnopilus bellulus (Peck) Murrill.

Agaricus bellulus Peck, Bull. Buffalo Soc. Nat. Sci. **1**: 51. 1873.
Naucoria bellula Sacc. Syll. Fung. 5: 841. 1887.
? *Gymnopilus Hillii* Murrill, Mycologia **4**: 253. 1912.

Pileus thin, convex, sometimes cespitose, 1.2–2.5 cm. broad; surface moist, smooth, bright-watery-cinnamon; lamellae crowded, narrow, emarginate, yellow, becoming darker with age; spores 5 × 3 μ; stipe equal, hollow, generally curved, smooth, reddish-brown, 2.5 cm. long.

TYPE LOCALITY: Lowville, New York.
HABITAT: On decaying hemlock trunks in woods.
DISTRIBUTION: Canada and New York.

23. Gymnopilus pusillus (Peck) Murrill.

Flammula pusilla Peck, Bull. N. Y. State Mus. 67: 26. 1903.

Pileus thin, convex, becoming nearly plane, 1.2–2.5 cm. broad; surface glabrous, viscid, pale-buff or yellow-ferruginous; lamellae narrow, crowded, adnate, whitish when young, brown-

ish-ferruginous when mature; spores ellipsoid, 7.5 × 4 μ; stipe short, equal, solid or stuffed, floccose-fibrillose, whitish, becoming ferruginous toward the base, which is slightly villose-strigose, the apex flocculent-pulverulent, 1.5–3 cm. long, about 2 mm. thick.

TYPE LOCALITY: Smithtown, Suffolk County, New York.
HABITAT: On roots of stumps and water-soaked wood in open places.
DISTRIBUTION: New York.
ILLUSTRATIONS: Bull. N. Y. State Mus. 67: *pl. M, f. 35–41.*

24. Gymnopilus viscidus (Peck) Murrill.

Flammula viscida Peck, Ann. Rep. N. Y. State Mus. **51**: 290. 1898.

Pileus hemispheric or convex, densely cespitose, 1.2–2.4 cm. broad; surface glabrous, pale-yellow, the pellicle viscid, separable; margin obscurely striatulate when moist, incurved when young; context white; lamellae thin, crowded, emarginate, adnexed, whitish when young, becoming dark-ferruginous; spores broadly ellipsoid, brownish-ferruginous, 6–7.5 × 4–5 μ; stipe equal, fibrous, hollow but the cavity small, sometimes squamulose, pallid or subferruginous, 2.5–5 cm. long, 3–4 mm. thick.

TYPE LOCALITY: North Elba, New York.
HABITAT: On decaying wood of alder, *Alnus incana.*
DISTRIBUTION: Known only from the type locality.

25. Gymnopilus squamulosus Murrill, sp. nov.

Pileus convex, not fully expanding, gibbous, solitary, 2 cm. broad; surface dry, finely squamulose, uniformly ferruginous, margin entire, concolorous; lamellae adnate, crowded, broad, plane, ferruginous to fulvous at maturity, yellowish and somewhat crenulate on the edges; spores ellipsoid, smooth, melleous under the microscope, uniguttulate, 8–9 × 5–6 μ; stipe tapering downward, short, subconcolorous, fibrillose, rather tough, 2 cm. long, 2 mm. thick.

Type collected on dead wood in woods near the New York Botanical Garden, September 13, 1910, *W. A. Murrill* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

26. Gymnopilus fagicola Murrill, sp. nov.

Pileus hemispheric, not fully expanding, slightly umbonate, cespitose, 2 cm. broad; surface dry, densely imbricate-squamulose, uniformly fulvous; lamellae adnate, distant, arcuate, broad, melleous to ferruginous, beautifully crenulate and yellow on the edges; spores ellipsoid, smooth, melleous under the microscope, 7–8 × 4–5 μ; stipe equal, slender, rather tough, solid, dry, ochraceous, becoming darker at the base, rough with rather coarse fibrils, 3 cm. long, 2 mm. thick.

Type collected on a dead beech log at Lake Placid, Adirondack Mountains, New York, July 17–29, 1912, *W. A. & Edna L. Murrill 183* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

27. Gymnopilus flavidellus Murrill, sp. nov.

Pileus convex to plane or slightly depressed, gregarious or subcespitose, 3–5 cm. broad; surface dry or moist, smooth, glabrous, not striate, melleous to ochraceous or luteous at the center, margin entire, cream-colored; context yellowish, with mawkish, slightly bitter taste; lamellae adnate or sinuate with a decurrent tooth, rather crowded and narrow, pale-yellow to ferruginous; spores ovoid, minutely echinulate, ferruginous, 8–9 × 5–6 μ; stipe subequal, solid to hollow, pale-yellow to yellowish-brown, pruinose at the apex, whitish-mycelioid at the base, 3–5 cm. long, 3–5 mm. thick; veil arachnoid, fugacious.

Type collected on a chestnut stump in woods at the New York Botanical Garden, September 9, 1911, *W. A. Murrill* (herb. N. Y. Bot. Gard.).
HABITAT: On dead wood of various deciduous and coniferous trees.
DISTRIBUTION: Throughout most of temperate North America; also in Bermuda.

28. Gymnopilus praecox (Peck) Murrill.

Flammula praecox Peck, Bull. Torrey Club **36**: 334. 1909.

Pileus fleshy, convex, becoming nearly plane, gregarious or cespitose, about 3 cm. broad; surface glabrous, moist or hygrophanous, brown or reddish-brown, paler when old and dry,

sometimes with a dull-greenish tint, margin at first involute; context pallid; lamellae rather crowded, adnate or sometimes slightly rounded behind, pale-ochraceous, becoming brownish-ochraceous, whitish and minutely crenulate or eroded on the edges; spores subochraceous, ellipsoid, 7–8 × 4–5 μ; stipe equal or slightly tapering upward, becoming hollow with age, silky-fibrillose, slightly floccose or furfuraceous at the apex when young from the pure-white, slight, evanescent veil, pallid, with a soft white tomentum at the base, 2–4 cm. long, 4–6 mm. thick.

TYPE LOCALITY: Rockville, Indiana.
HABITAT: On decaying wood, bark, or branches of deciduous trees, commonly basswood, *Tilia americana*, or even on dead herbaceous stems.
DISTRIBUTION: Known only from the type locality.

29. Gymnopilus unicolor Murrill, sp. nov.

Pileus convex to subexpanded, obtuse, gregarious, not cespitose, 3–5 cm. broad; surface glabrous, hygrophanous, not viscid, dark-umbrinous, becoming dull-brownish-ochraceous when dry, margin not striate, always decurved; lamellae heterophyllous, rather long-decurrent, subdistant, broad, arcuate to subplane, dull-yellow, becoming dull-cinnamon; spores ellipsoid, dull-cinnamon, 10 × 6 μ; stipe tough, cylindric, subglabrous, subconcolorous, solid but stuffed with fibers within, 4–6 cm. long, 4–6 mm. thick; veil brownish, soon evanescent or subannulate.

Type collected on a wet, very rotten log in a swamp north of Auburn, Alabama, January 6, 1900, *Esther S. Earle* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

30. Gymnopilus piceinus Murrill, sp. nov.

Pileus convex to expanded, obtuse, scattered or cespitose, 3–5 cm. broad; surface very viscid, glabrous, bright-yellow, darker and reddish on the disk, margin not striate; context greenish-yellow, with nearly mild taste; lamellae heterophyllus, sinuate-decurrent, subcrowded, rather broad, plane, yellow to pale-fuscous; spores ellipsoid, pale-fuscous, 7–8 × 4–5 μ; stipe cylindric, somewhat fibrillose, concolorous but darker at the base, stuffed, becoming hollow, 3–5 cm. long, 4–6 mm. thick.

Type collected on a much decayed spruce tree at Bar Harbor, Maine, August, 1901, *V. S. White 129* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

31. Gymnopilus alnicola (Fries) Murrill.

Agaricus alnicola Fries, Syst. Myc. **1**: 250. 1821.
Flammula alnicola Quél. Champ. Jura Vosg. 233. 1872.
Flammula sulphurea Peck, Bull. N. Y. State Mus. 157: 26. 1912. Not *F. sulphurea* Massee, 1902.

Pileus fleshy, subconic or convex, becoming broadly convex, cespitose or densely gregarious, 3–6 cm. broad; surface glabrous, viscid, hygrophanous, yellow, at length becoming rust-colored, sometimes with whitish, silky, fibrillose scales on the margin; context white when dry, the taste bitter, disagreeable; lamellae thin, broad, crowded, arcuate, adnate, crenulate on the edges, pallid, becoming dark-ferruginous; spores ellipsoid, dark-ferruginous, 8–11 × 5–6 μ; stipe equal, curved or flexuous, radicate, fibrillose or squamulose below, stuffed or hollow, pale-yellow and naked at the apex, ferruginous toward the base, 3–8 cm. long, 4–10 mm. thick; veil manifest, fibrillose or arachnoid.

TYPE LOCALITY: Europe.
HABITAT: At the base of birch, maple, apple, and other frondose trees.
DISTRIBUTION: New England and New York; also in Europe.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. 54: *pl. G, f. 8–14;* Bull. N. Y. State Mus. 157: *pl. VII, f. 7–11;* Cooke, Brit. Fungi *pl. 443* (*480*)*;* Gill. Champ. Fr. *pl. 366* (*282*)*;* Ricken, Blätterp. Deutschl. *pl. 58, f. 5.*

32. Gymnopilus pulchrifolius (Peck) Murrill.

Flammula pulchrifolia Peck, Bull. N. Y. State Mus. 122: 21. 1908.

Pileus fleshy but thin, hemispheric, becoming convex, 2.5–5 cm. broad; surface slightly viscid when moist, hygrophanous, fibrillose or, in large specimens, squamulose at the center

and fibrillose on the margin, pale-pink or pallid on the margin and pink at the center; context white, the taste bitter and unpleasant; lamellae thin, crowded, adnate, sometimes slightly sinuate, whitish, soon bright-tawny or Indian-yellow, becoming bright-tawny-ochraceous with age; spores bright-tawny-ochraceous in a thick layer, ochraceous-buff in a thin one, 7.5 × 5–6 μ; stipe equal or nearly so, stuffed or hollow, pallid, sometimes yellowish at the base, fibrillose at the apex from the remains of the veil, 2.5–3.5 cm. long, 3–4 mm. thick.

TYPE LOCALITY: Menands, Albany County, New York.
HABITAT: On decaying wood of hemlock.
DISTRIBUTION: Northern New York, Massachusetts, Minnesota, and Indiana.

33. Gymnopilus granulosus (Peck) Murrill.

Flammula granulosa Peck; V. White, Bull. Torrey Club 29: 561. 1902.

Pileus thin, hemispheric, becoming convex, solitary, 2.5–3.5 cm. broad; surface dry, densely squamulose, tawny; context with slightly nutty taste; lamellae thin, rather broad, subdistant, adnate or slightly decurrent, pale-yellow, becoming tawny-ferruginous; spores ellipsoid, generally uninucleate, 7–8 × 4–5 μ; stipe fleshy, rather slender, stuffed, glabrous or sometimes minutely squamulose, concolorous, 2.5–3 cm. long, 1.5–3 mm. thick.

TYPE LOCALITY: Bar Harbor, Mount Desert, Maine.
HABITAT: On decaying coniferous wood or sawdust.
DISTRIBUTION: Maine to Pennsylvania.

34. Gymnopilus aromaticus Murrill, sp. nov.

Pileus convex to expanded, thin, somewhat cespitose, 3 cm. broad; surface conspicuously floccose, areolate with age, yellowish-ferruginous, margin not striate; context whitish, aromatic, with the taste of birch twigs; lamellae adnexed, crowded, rather narrow, yellow to bright-ferruginous; spores ferruginous, ellipsoid, 8 × 4 μ; stipe cylindric, densely yellow-fibrillose, chrome-yellow, solid, hard, whitish within, 2–3 cm. long, 4 mm. thick.

Type collected on a dead hemlock at West Park, New York, August 9, 1903, *F. S. Earle 1854* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Maine and New York.

35. Gymnopilus eccentricus (Peck) Murrill.

Flammula eccentrica Peck, Bull. Torrey Club 31: 179. 1904.

Pileus thin, broadly convex, obtuse or slightly umbilicate, 2.5–3.5 cm. broad; surface dry, minutely squamulose, tawny, yellowish, or reddish-ferruginous; context whitish; lamellae rather broad, crowded, somewhat sinuate-adnate, dingy-ochraceous, becoming ferruginous; spores bright-ferruginous, ellipsoid, 15–16 × 8 μ; stipe equal or slightly tapering upward, commonly eccentric, solid, fibrillose, yellowish or dingy-ochraceous, becoming brownish without and within, 2–3 cm. long, 4–8 mm. thick.

TYPE LOCALITY: St. Louis, Missouri.
HABITAT: On decaying wood.
DISTRIBUTION: Known only from the type locality.

36. Gymnopilus penetrans (Fries) Murrill, Mycologia 4: 254. 1912.

Agaricus penetrans Fries, Obs. Myc. 1: 23. 1815.
Flammula penetrans Quél. Champ. Jura Vosg. 233. 1872.

Pileus conic or convex to plane, gregarious or sometimes cespitose, 3–6 cm. broad; surface dry, slightly floccose-squamulose when young, often becoming squamose or rimose with age, golden-tawny or ferruginous-fulvous, sometimes much darker in old or dried specimens; lamellae adnate, crowded, cream-colored to ferruginous or fulvous, changing to reddish-fulvous when bruised, entire and concolorous on the edges; spores ovoid or ellipsoid, smooth, melleous under the microscope, 7–9 × 3.5–5 μ; stipe rather short, often irregular, equal or tapering upward, whitish-fibrillose streaked with yellow or brown, often much darker below with age, whitish- or yellowish-mycelioid at the base, 4–8 cm. long, 5–10 mm. thick; veil slight, floccose, fugacious.

TYPE LOCALITY: Sweden.
HABITAT: On dead coniferous wood, usually on pine.
DISTRIBUTION: Throughout temperate North America; Cuba and Jamaica; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 447* (*487*) (as *Agaricus sapineus*); Fries, Ic. Hymen. *pl. 118, f. 2.*
EXSICCATI: Ellis, N. Am. Fungi *906* (as *Agaricus sapineus*).

37. Gymnopilus subfulvus (Peck) Murrill.

Flammula subfulva Peck, Ann. Rep. N. Y. State Mus. **41**: 68. 1888.

Pileus convex, more or less cespitose, 3.5–6 cm. broad; surface viscid, innately fibrillose, sordid-tawny, spotted toward the margin with darker colored, appressed scales; context grayish-white; lamellae crowded, adnate, becoming ferruginous; spores ellipsoid, uninucleate, brownish-ferruginous, 6–7.5 × 4 μ; stipe equal or slightly tapering upward, fibrillose, solid, whitish, 5–7.5 cm. long, 4–8 mm. thick.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: About the bases of trees.
DISTRIBUTION: New York and Pennsylvania.

38. Gymnopilus polychrous (Berk.) Murrill.

Agaricus polychrous Berk. Lond. Jour. Bot. **6**: 313. 1847.
Agaricus ornellus Peck, Ann. Rep. N. Y. State Mus. **34**: 42. 1883.
Flammula polychroa Sacc. Syll. Fung. **5**: 824. 1887.
Pholiota appendiculata Peck, Bull. N. Y. State Mus. 94: 33. 1905.
Pholiota ornella Peck, Bull. N. Y. State Mus. 122: 151. 1908.

Pileus fleshy, firm, convex or nearly plane, broadly umbonate, solitary or cespitose, 4–6 cm. broad; surface very viscid, slightly squamose, of many colors, purple when young, changing to buff or light-yellow on the margin with the umbo purple or brownish-yellow, margin floccose-appendiculate; lamellae broad, rather distant, sinuate, adnate, or slightly decurrent, at first dirty-white, becoming brownish-purple and at length yellowish-brown; spores ellipsoid, smooth, yellowish under the microscope, brown in mass, 6–7 × 4 μ; stipe firm, nearly equal, somewhat woody, at first furfuraceous, solid, pale-yellow, often purplish at the base, 2.5–7 cm. long, 3–5 mm. thick; veil evanescent, consisting of purple and yellow fibers.

TYPE LOCALITY: Waynesville, Ohio.
HABITAT: On dead deciduous branches and logs.
DISTRIBUTION: New England to Alabama and west to Wisconsin.
ILLUSTRATIONS: Atk. Stud. Am. Fungi ed. 1. *f. 147;* ed. 2. *f. 151;* Bull. N. Y. State Mus. 94: *pl. P, f. 8–17.*

39. Gymnopilus multifolius (Peck) Murrill.

Flammula multifolia Peck, Bull. Torrey Club **32**: 79. 1905.
Flammula expansa Peck, Bull. N. Y. State Mus. 116: 24. 1907.

Pileus convex, subumbonate, 6–8 cm. broad; surface glabrous or obscurely fibrillose, tawny-yellow, sometimes paler on the margin and darker at the center, margin incurved; context faintly tinged with yellow; lamellae narrow, numerous, crowded, rounded behind, adnexed, concolorous or a little paler than the pileus, the edges crenulate with yellow or reddish-yellow glandular drops; spores subglobose, 4–5 μ; stipe equal or slightly thickened at the base, solid, floccose, fibrillose or subglabrous, yellow, sometimes eccentric, 2.5–3.5 cm. long, 2–5 mm. thick.

TYPE LOCALITY: St. Louis, Missouri.
HABITAT: On decaying wood in ravines and on dead logs.
DISTRIBUTION: New York, Missouri, and the mountains of western North Carolina.

40. Gymnopilus ludovicianus Murrill, sp. nov.

Pileus firm, depressed, 6–10 cm. broad; surface glabrous, moist, not viscid, pale-yellowish-tan, margin not striate, upturned; context white, mild; lamellae adnate, crowded, narrow, pale-cinnamon; spores subovoid, smooth, melleous under the microscope, 8–9 × 6–7 μ; stipe cylindric, often curved, firm, white, glabrous, solid, 10–12 cm. long, 1 cm. thick.

Type collected at the base of a living maple tree in City Park, New Orleans, September 3, 1908, *F. S. Earle 39* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

41. Gymnopilus lentus (Pers.) Murrill.

Agaricus lentus Pers. Syn. Fung. 287. 1801.
Flammula lenta Gill. Champ. Fr. **1**: 533. 1878.
Flammula betulina Peck, Bull. Torrey Club **34**: 100. 1907.

Pileus fleshy, convex, becoming nearly plane, 6–10 cm. broad; surface floccose or fibrillose, smooth or roughish, viscid when young, subviscid when old, whitish or buff, some-

times slightly appendiculate on the margin; context white; lamellae thin, broad, crowded, ventricose, adnate or decurrent with a tooth, whitish, becoming cinnamon-brown; spores ellipsoid, 6–8 × 4–5 μ; stipe fleshy, fragile, equal, fibrous, stuffed, striate at the apex, whitish, 5–7 cm. long, 6–9 mm. thick.

TYPE LOCALITY: Europe.
HABITAT: On dead trunks.
DISTRIBUTION: New York to South Carolina in the eastern United States; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 439 (469), 440 (470);* Gill. Champ. Fr. *pl. 116 (284).*

42. **Gymnopilus Underwoodii** (Peck) Murrill.

Flammula Underwoodii Peck, Bull. Torrey Club **23**: 415. 1896.

Pileus convex or nearly plane, often irregular from its densely cespitose mode of growth, 6–10 cm. broad; surface squamulose or furfuraceous, yellowish-brown; lamellae rather broad, crowded, adnate or slightly decurrent, yellow; spores ellipsoid, ochraceous, 6–7.5 × 4–5 μ; stipe tapering downward, radicate, longitudinally streaked with brownish hues, yellow at the apex, 5–10 cm. long, 6–12 mm. thick.

TYPE LOCALITY: Alabama.
HABITAT: On pine trunks.
DISTRIBUTION: Virginia to Florida.

43. **Gymnopilus magnus** (Peck) Murrill.

Flammula magna Peck, Ann. Rep. N. Y. State Mus. **50**: 103. 1897.
Cortinarius validipes Peck, Bull. N. Y. State Mus. 116: 20. 1907.

Pileus fleshy, soft, broadly convex, cespitose, 10–15 cm. broad; surface dry, fibrillose and somewhat virgate, pale-yellow or buff, margin commonly becoming revolute with age; context whitish or yellowish; lamellae crowded, adnate or slightly decurrent, often crisped or wavy toward the stipe, about 6 mm. wide, ochraceous; spores subellipsoid, ochraceous, 8–10 × 5–6 μ; stipe equal or thickened toward the base, fleshy-fibrous, solid, elastic, fibrillose, concolorous, brighter yellow within, 7.5–10 cm. long, 1.5–5 cm. thick.

TYPE LOCALITY: Westchester County, New York.
HABITAT: About the bases of trees.
DISTRIBUTION: New York.

44. **Gymnopilus fulvellus** (Peck) Murrill, Mycologia **4**: 253. 1912.

Flammula fulvella Peck; J. M. Macoun, in D. S. Jordan, Fur Seals N. Pacif. **3**: 584. 1899.

Pileus thin, convex or nearly plane, 1.2–2.4 cm. broad; surface glabrous, subtawny, the margin deflexed or incurved; context whitish; lamellae thin, subdistant, adnate or slightly decurrent, somewhat tawny, inclining to ochraceous-tawny; spores ellipsoid, 12.5 × 7.5 μ; stipe equal, solid, fibrillose or fibrillose-squamulose, concolorous, 2.5 cm. long, 3–4 mm. thick.

TYPE LOCALITY: St. Paul Island, Bering Sea.
HABITAT: On low ground.
DISTRIBUTION: Known only from the type locality.

45. **Gymnopilus californicus** (Earle) Murrill, Mycologia **4**: 253. 1912.

Flammula californica Earle, Bull. N. Y. Bot. Gard. **2**: 342. 1902.

Pileus expanded, subumbonate, gregarious or cespitose, 4–7 cm. broad; surface glabrous, subhygrophanous, pale-ochraceous-brown, often darker on the umbo, margin entire; context cream-colored, unchanging, the taste and smell mild; lamellae subsinuate-decurrent, heterophyllous, crowded, subventricose, pale-ochraceous to fusco-ferruginous; spores ferruginous, ellipsoid, 6–7 × 4 μ; stipe subequal, slightly enlarged at the apex and base, glabrous above, brown-fibrillose below, pale-brown, yellowish-white at the apex, solid, white-mycelioid at the base, 5–6 cm. long, 3–4 mm. thick.

TYPE LOCALITY: Stanford University, California.
HABITAT: Under trees, probably from buried rotten wood.
DISTRIBUTION: Vicinity of Stanford University, California.

46. **Gymnopilus pallidus** Murrill, Mycologia 4: 252. 1912.

Flammula pallida Murrill, Mycologia 4: 262. 1912.

Pileus irregularly convex to plane, umbonate, 3–7 cm. broad; surface dull-yellowish-gray, dry, smooth, glabrous, margin inflexed; context hyaline to grayish, watery, without characteristic taste or odor; lamellae adnexed, crowded, broad, falcate, grayish-white to fulvous; spores broadly ellipsoid, smooth, ochraceous-ferruginous under the microscope, fulvous in mass, 8–9 × 3.5–4.5 μ; stipe stout, pallid, hollow, fibrillose, 3–4 cm. long, 5–7 mm. thick; veil slight, evanescent, leaving no annulus.

TYPE LOCALITY: New Westminster, British Columbia.
HABITAT: On the ground under conifers.
DISTRIBUTION: Known only from the type locality.

47. **Gymnopilus viscidissimus** Murrill, Mycologia 4: 256. 1912.

Flammula viscidissima Murrill, Mycologia 4: 262. 1912.

Pileus conic, not fully expanding, gregarious, 2 cm. broad; surface smooth, glabrous, very slimy, isabelline with an incarnate tint, usually a little darker at the center; lamellae sinuate-adnate, broad, ventricose, rather crowded, pale-isabelline, becoming darker with age; spores ovoid, pointed, often one-sided, very pale with a fuscous tint under the microscope, dark-fulvous in mass, 7 × 3–4 μ; stipe equal or slightly larger below, stuffed, whitish, furfuraceous above, fibrillose below, rather tough, 6 cm. long, 3.5 mm. thick.

TYPE LOCALITY: Mill City, Oregon.
HABITAT: Among mosses and humus on the ground in woods and in a peat bog.
DISTRIBUTION: Washington and Oregon.

48. **Gymnopilus spinulifer** Murrill, Mycologia 4: 254. 1912.

Flammula spinulifer Murrill, Mycologia 4: 262. 1912.

Pileus convex, umbonate, at length expanding and losing the umbo, scattered or clustered, 3.5–8 cm. broad; surface smooth, glabrous, viscid, light-yellow with bay center, margin entire; context cremeous, without characteristic taste or odor; lamellae adnate or very slightly sinuate, plane, of medium breadth and distance, yellowish to ferruginous; spores ovoid to ellipsoid, smooth, pale-melleous under the microscope, dark-fulvous in mass; cystidia hyaline, flask-shaped, with short, narrow neck and long stalk, 70 × 15 μ; stipe equal, hollow, subglabrous, with conspicuous mycelium at the base, yellowish-white or tinged with bay, 5–9 cm. long, 7–11 mm. thick; veil arachnoid, whitish, leaving a small ring of fibrils near the apex of the stipe.

TYPE LOCALITY: Portola, California.
HABITAT: On the ground among leaves under redwoods.
DISTRIBUTION: California.

49. **Gymnopilus subcarbonarius** Murrill, Mycologia 4: 256. 1912.

Flammula subcarbonaria Murrill, Mycologia 4: 262. 1912.

Pileus convex to expanded, rarely umbonate, rather thin, gregarious, 3–4 cm. broad; surface smooth, glabrous, very viscid, red to bay, yellow on the margin, sometimes darker at the center; lamellae adnate or sinuate, not crowded, rather narrow, inserted, pale-yellow to ochraceous or fulvous; spores ellipsoid, smooth, melleous under the microscope, fulvous in mass, 7 × 3–4 μ; stipe short, somewhat enlarged below, white, scaly, hollow, 3–4 cm. long, 4–8 mm. thick; veil fibrillose, evanescent, not leaving an annulus.

TYPE LOCALITY: Berkeley, California.
HABITAT: On the ground.
DISTRIBUTION: Known only from the type locality.

50. **Gymnopilus foedatus** (Peck) Murrill, Mycologia 4: 257. 1912.

Hebeloma foedatum Peck, Bull. Torrey Club 22: 202. 1895.

Pileus fleshy, convex, becoming plane or centrally depressed, 3.5–7.5 cm. broad; surface glabrous, very viscid or glutinous, reddish-cinnamon; context yellowish-white; lamellae sub-ventricose, slightly decurrent, scarcely sinuate, cinnamon-colored, becoming mummy-brown;

spores broadly ellipsoid, 6–7.5 × 4–5 μ; stipe solid, equal or slightly thickened at the base, fibrillose, paler than the pileus, 3.5–6.5 cm. long, 4–8 mm. thick.

TYPE LOCALITY: Pasadena, California.
HABITAT: On the streets or among oak leaves.
DISTRIBUTION: Southern California.

51. Gymnopilus ornatulus Murrill, Mycologia 4: 251. 1912.

Flammula ornatula Murrill, Mycologia 4: 262. 1912.

Pileus convex to nearly plane, gibbous or umbonate, cespitose, 3 cm. broad; surface dry, slightly viscid when wet, fibrillose, flavo-melleous tinged with pale-rose-brown, the latter color more conspicuous at the center; lamellae adnate, plane, broad, of medium distance, pallid when young, becoming pale-fulvous from the spores; spores ellipsoid, smooth, pale-melleous under the microscope, 6 × 3.5–4 μ; stipe smooth, glabrous and cremeous at the apex, subconcolorous and shaggy-fibrillose below, 5 cm. long, 4 mm. thick.

TYPE LOCALITY: Preston's Ravine, California.
HABITAT: On a bank by the roadside.
DISTRIBUTION: Known only from the type locality.

52. Gymnopilus Abramsii Murrill, sp. nov.

Pileus convex to subexpanded, scattered, 4–6 cm. broad; surface dry or nearly so, grayish-brown, decorated with reddish-brown fibrils or scales, margin entire, concolorous; context white, without characteristic odor or taste; lamellae adnate or adnexed, crowded, ventricose, creamy-pink to ferruginous; spores ellipsoid, smooth, bright-ferruginous, 8 × 4–5 μ; stipe cylindric or slightly compressed, white, solid, smooth, slightly arachnoid-fibrillose, 6–8 cm. long, 6–10 mm. thick.

Type collected on the ground among oak leaves at Stanford University, California, November 27, 1902, *L. R. Abrams & James McMurphy 65* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

53. Gymnopilus longisporus Murrill, sp. nov.

Pileus irregular, convex to expanded and at length somewhat depressed, solitary, about 4 cm. broad; surface subtomentose, hygrophanous, uniformly castaneous-fulvous, margin entire, concolorous, inflexed, context thick, yellow; lamellae adnate, thick, subdistant, rather narrow, watery-flavous, entire and concolorous on the edges; spores oblong-fusiform, smooth, melleous under the microscope, uniguttulate, 8–10 × 5–6 μ; stipe enlarged below, somewhat fibrillose, longitudinally streaked, avellaneous to sulfureous, flavous-mycelioid at the base, 5 cm. long, 1.3 cm. thick.

Type collected on the ground in a coniferous forest at Mill City, Oregon, November 9, 1911, *W. A. Murrill 819* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

54. Gymnopilus oregonensis Murrill, sp. nov.

Pileus conic to hemispheric-convex, not fully expanding, gregarious, 1.5–2.5 cm. broad; surface dry or moist, smooth, glabrous, uniformly latericious, margin entire, concolorous, deflexed; lamellae adnexed, broad, not crowded, cremeous to fulvous; spores ovoid, finely echinulate, pale-ferruginous under the microscope, 8.5 × 5–6 μ; stipe equal, hollow, smooth, latericious or slightly paler, whitish-pulverulent throughout, becoming more or less glabrous with age, 2–3 cm. long, 3–5 mm. thick.

Type collected on a dead fir log in a dense fir forest at Glen Brook, Oregon, November 7, 1911, *W. A. Murrill 739* (herb. N. Y. Bot. Gard.).
HABITAT: On dead coniferous logs.
DISTRIBUTION: Oregon.

55. Gymnopilus vialis Murrill, Mycologia 4: 255. 1912.

Flammula vialis Murrill, Mycologia 4: 262. 1912.

Pileus convex to expanded, at length depressed, splitting radially at the margin, wood-loving, 5 cm. broad; surface dry, glabrous, smooth, at length rimose, dark-flavo-luteous with

bay center or the entire surface bay; lamellae adnate, ventricose, broad, rather crowded, citrinous to ferruginous-fulvous; spores ellipsoid, rounded at the ends, smooth, melleous under the microscope, 7 × 3.5 μ; stipe equal or inflated, solid or hollow, citrinous, fibrillose, especially at the top, where a slight trace of the fugacious veil remains, 5 cm. long, 1–1.5 cm. thick.

TYPE LOCALITY: Corvallis, Oregon.
HABITAT: On a railway tie.
DISTRIBUTION: Known only from the type locality.

56. Gymnopilus subviridis Murrill; House, Bull. N. Y. State Mus. 179: 33. 1915.

Flammula subviridis Murrill; House, Bull. N. Y. State Mus. 179: 33. 1915.

Pileus convex to nearly plane, circular, 8–10 cm. broad; surface dry, dull-green with a bluish-green bloom, becoming glabrous with age; margin very involute, undulate, not at all appendiculate; context greenish-yellow with an agreeable odor; lamellae deeply emarginate, broad, inserted, distant, brownish-green, uneven on the edges; spores broadly ovoid to subglobose, ferruginous, asperulate, about 5 × 3.5–4 μ; stipe long, slender, flexuous, largest at the middle, concolorous, staining brownish, fleshy-fibrous, greenish within, reaching 10–15 cm. long and 1 cm. thick.

TYPE LOCALITY: Olympia, Washington.
HABITAT: On a decayed fir stump.
DISTRIBUTION: Known only from the type locality.

57. Gymnopilus permollis Murrill, Mycologia 4: 252. 1912.

Flammula permollis Murrill, Mycologia 4: 262. 1912.

Pileus convex, not umbonate, solitary, wood-loving, 5–7 cm. broad; surface viscid when young, becoming dry, smooth, glabrous, very soft and pliable to the touch, isabelline; lamellae remotely sinuate-adnate, rather distant, broad, becoming fulvous; spores ovoid, slightly one-sided, obliquely pointed, minutely roughened, melleous under the microscope, with one large nucleus, 11 × 6 μ; stipe equal, longitudinally striate, white, furfuraceous at the apex, fleshy, 5–8 cm. long, 8–10 mm. thick.

TYPE LOCALITY: Seattle, Washington.
HABITAT: On dead wood in a coniferous forest.
DISTRIBUTION: Washington and Oregon.

58. Gymnopilus echinulisporus Murrill, Mycologia 4: 255. 1912.

Flammula echinulispora Murrill, Mycologia 4: 262. 1912.

Pileus convex to plane, at length depressed, slightly umbonate when young, wood-loving, reaching 7 cm. broad; surface nearly smooth, moist, glabrous, shining, ferruginous at the center, fulvous on the margin, paler in dry weather, when it is usually darker at the center than on the margin, which is folded or fissured, strongly incurved on drying; lamellae sinuate-adnate with a tooth, broad, slightly ventricose, ferruginous-isabelline to fulvous; spores broadly ovoid to subglobose, conspicuously and densely echinulate, ferruginous under the microscope, 6–9 × 5–6 μ; stipe equal, or enlarged just at the base, longitudinally striate, whitish to isabelline-ferruginous, about 6 cm. long, 1.3–1.6 cm. thick; veil apparently wanting, even in quite young plants.

TYPE LOCALITY: Mill City, Oregon.
HABITAT: On dead wood in woods.
DISTRIBUTION: Oregon.

59. Gymnopilus subflavidus Murrill, Mycologia 4: 252. 1912.

Flammula subflavida Murrill, Mycologia 4: 262. 1912.

Pileus thin, conic or convex to expanded, umbonate when young, cespitose, wood-loving, 3–5 cm. broad; surface slimy, glabrous, smooth, melleous with fulvous center, becoming green-spotted when handled, margin entire, strongly incurved; lamellae citrinous to fulvous, sinuate or adnate, of medium breadth and distance; spores ellipsoid, rounded at the ends, smooth,

melleous under the microscope, 7–8 × 3.5–4 μ; stipe equal, cremeous above, pale-fulvous below, smooth, fibrillose, 4–7 cm. long, 5–8 mm. thick; veil slight, citrinous, membranous in young stages, soon breaking into fibrils and leaving no annulus.

Type locality: Seattle, Washington
Habitat: On dead stumps and logs in woods.
Distribution: Seattle, Washington.

60. Gymnopilus laeticolor Murrill, Mycologia 4: 251. 1912.

Flammula laeticolor Murrill, Mycologia 4: 262. 1912.

Pileus convex or somewhat conic to subexpanded, rarely umbonate, thin, cespitose, wood-loving, 3–5 cm. broad; surface smooth, glabrous, slightly viscid, hygrophanous, miniatous when young, becoming testaceous at the center and ochroleucous on the margin in mature plants; context dull-colored, bitterish; lamellae adnate, rather narrow, not crowded, ochraceous; spores ellipsoid, smooth, hyaline with a yellowish tint under the microscope, probably pale-ochraceous in mass, with one or two very brilliant nuclei, 7 × 3–4 μ; stipe equal, miniatous to ochroleucous below, white above, slightly moist and viscid, decorated with a few fibrils, the remains of a slight white veil, about 7 cm. long, 4–8 mm. thick.

Type locality: Seattle, Washington.
Habitat: Growing from the under side of a much decayed coniferous log in the forest.
Distribution: Seattle, Washington.

61. Gymnopilus latus Murrill, Mycologia 4: 257. 1912.

Flammula lata Murrill, Mycologia 4: 262. 1912.

Pileus convex to plane, not umbonate, gregarious, wood-loving, reaching 9 cm. broad; surface glabrous, shining, viscid, radiate-lineate, ferruginous-fulvous at the center, ochroleucous on the margin; context rather thin, mild to the taste; lamellae sinuate or adnate, pallid to fulvous, plane, not crowded, rather narrow; spores ellipsoid, rounded at the ends, smooth, melleous under the microscope, 6 × 3.5 μ; stipe equal or slightly larger below, dry, smooth, subglabrous, fleshy, white or somewhat yellowish, with yellow or orange mycelium at the base, 5–7 cm. long, 1–1.3 cm. thick; veil pale-yellow, membranous in young hymenophores, soon breaking into fibrils and disappearing.

Type locality: Seattle, Washington.
Habitat: On a dead deciduous log in woods.
Distribution: Known only from the type locality.

62. Gymnopilus decoratus Murrill, Mycologia 4: 251. 1912.

Flammula decorata Murrill, Mycologia 4: 262. 1912.

Pileus convex to slightly depressed, at times umbonate, cespitose, wood-loving, 3.5–5 cm. broad; surface slightly viscid, the center imbricate-scaly with pale-bay scales, chestnut-colored on the umbo, the remainder of the surface cremeous, fading to white toward the margin; lamellae adnate or sinuate, isabelline to fulvous, rather broad but plane, not crowded, the edges undulate; spores ellipsoid or ovoid, smooth, very pale melleous under the microscope, 5–6 × 3.5–4 μ; cystidia abundant, hyaline, conic, tapering to a short, narrow stalk, obtuse at the apex, 30 × 12 μ; stipe equal, rather tough, stuffed, white or yellowish, shaggy-fibrillose, 5–8 cm. long, 5–6 mm. thick; veil fibrillose, evanescent, remaining attached partly to the margin and partly to the stipe.

Type locality: Seattle, Washington.
Habitat: On dead wood in open ground or in woods.
Distribution: Washington and Oregon.

63. Gymnopilus hypholomoides Murrill, Mycologia 5: 26. 1913.

Flammula hypholomoides Murrill, Mycologia 5: 36. 1913.

Pileus convex to expanded, 3–6 cm. broad; surface dry, subfibrillose, pale-fuscous, ferruginous at the center, margin thin, somewhat folded and uneven, not striate; context thin, yellowish, of mawkish flavor; lamellae inserted, crowded, rather narrow, sinuate, tawny-

yellow to pale-fuscous; spores ellipsoid, fuscous, 7 × 4 μ; stipe cylindric, curved, concolorous, fibrillose, solid, tough, 4–6 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Rose Hill, Jamaica.
HABITAT: On the ground, apparently attached to buried wood.
DISTRIBUTION: Known only from the type locality.

64. Gymnopilus jalapensis Murrill, Mycologia 5: 25. 1913.

Flammula jalapensis Murrill, Mycologia 5: 36. 1913.

Pileus expanded, at length depressed at the center, reaching 8 cm. in breadth; surface smooth, moist, glabrous, cremeous at the margin, ochraceous near the center and ferruginous-isabelline to fulvous at the center, slightly greenish when bruised, margin curved downward and irregular or undulate; context white, mild, 5 mm. thick behind; lamellae adnate, crowded, ventricose behind, arcuate near the margin, stramineous, about 5 mm. broad; spores ellipsoid, smooth, subhyaline but with a distinct ferruginous tint, 6 × 3.5 μ; cystidia abundant, flask-shaped, 60–75 × 15 μ, mostly empty and hyaline, with short stalks and long, slender, septate necks filled with yellowish contents; stipe equal below, slightly enlarged at the apex, glabrous, stramineous, with a trace of a slight cortina at the middle, reaching 8 cm. long and 1 cm. thick.

TYPE LOCALITY: Jalapa, Vera Cruz, Mexico.
HABITAT: On the ground in leaf-mold in a dense virgin forest.
DISTRIBUTION: Jalapa, Vera Cruz, Mexico.

65. Gymnopilus olivaceus (Pat.) Murrill, Mycologia 5: 18. 1913.

Flammula olivacea Pat. in Duss, Enum. Champ. Guad. 55. 1903.

Pileus convex, obtuse-mamillate at the center, cespitose, 6–12 mm. broad; surface glabrous, smooth, yellowish-olive; lamellae adnate, crowded, narrow, brown; spores ovoid, smooth, flavo-rufescent, 8 × 5 μ; stipe filiform, central, cylindric, concolorous, 1.5 cm. long.

TYPE LOCALITY: Basse-Terre, Martinique.
HABITAT: On dead wood.
DISTRIBUTION: Known only from the type locality.

66. Gymnopilus aureoviridis (Pat.) Murrill, Mycologia 5: 19. 1913.

Flammula aureoviridis Pat. in Duss, Enum. Champ. Guad. 55. 1903.

Pileus convex, umbilicate, 15 mm. broad; surface glabrous, smooth, yellowish-orange to greenish; lamellae adnate, crowded, narrow, reddish-brown; spores ochraceous-purple, 6–8 × 5 μ; stipe central, cylindric, flexuous, fibrillose, greenish-yellow, 4–7 cm. long, 1 mm. thick.

TYPE LOCALITY: Camp Jacob, Guadeloupe.
HABITAT: On rotten wood.
DISTRIBUTION: Known only from the type locality.

67. Gymnopilus chrysotrichoides Murrill, Mycologia 5: 21. 1913.

Flammula chrysotrichoides Murrill, Mycologia 5: 36. 1913.

Pileus thick, fleshy, convex to subexpanded, gregarious, reaching 7 cm. broad; surface dry or moist, not viscid, glabrous, ferruginous to fulvous, margin entire, concolorous, slightly sulcate with age, inflexed on drying; lamellae adnate with a decurrent tooth, broad, crowded, becoming ferruginous or fulvous; spores ellipsoid, punctate-tuberculate, ferruginous, 8–9 × 5–6 μ; stipe cylindric, equal, usually somewhat curved, pallid, glabrous, longitudinally furrowed, at least above, 4–6 cm. long, 3–6 mm. thick, decorated near the apex with the remains of a rather large, membranous, yellowish, usually permanent veil.

TYPE LOCALITY: Managua, Cuba.
HABITAT: On a dead cocoanut log.
DISTRIBUTION: Known only from the type locality.

68. Gymnopilus helvoliceps (Berk. & Curt.) Murrill, Mycologia 5: 20. 1913.

Agaricus helvoliceps Berk. & Curt. Jour. Linn. Soc. 10: 290. 1868.
Flammula helvoliceps Sacc. Syll. Fung. 5: 813. 1887.

Pileus thin, convex to depressed, 2.5 cm. broad; surface glabrous, helvolous; lamellae adnate, arcuate, ferruginous-vinous; spores oblong-ellipsoid, smooth or slightly punctate,

ferruginous, 9–12 × 5 μ; stipe equal, fuscous, solid, glabrous, substrigose at the base, 2.5–3 cm. long.

TYPE LOCALITY: Cuba.
HABITAT: On rotten logs in woods.
DISTRIBUTION: Known only from the type locality.

69. **Gymnopilus vinicolor** (Pat.) Murrill, Mycologia 5: 18. 1913.

Flammula vinicolor Pat. Jour. de Bot. 3: 339. 1889.

Pileus fleshy, convex to plane, orbicular, deeply umbilicate, cespitose, 1–2 cm. broad; surface smooth, glabrous, red tinged with wine-color when fresh, brownish-yellow when dry; lamellae scarcely decurrent, plane, broad, crowded, yellow; spores ovoid, smooth, ochraceous, 6–7 × 3–4 μ; stipe cylindric, striate, reddish-brown, paler at the apex, rather tough, 3–4 cm. long, 2 mm. thick.

TYPE LOCALITY: Saint Pierre, Martinique.
HABITAT: On dead wood.
DISTRIBUTION: Known only from the type locality.

70. **Gymnopilus chrysotrichus** (Berk. & Curt.) Murrill, Mycologia 5: 21. 1913.

Agaricus chrysotrichus Berk. & Curt. Jour. Linn. Soc. **10**: 290. 1868.
Flammula chrysotricha Sacc. Syll. Fung. **5**: 813. 1887.

Pileus fleshy, eccentric, obtuse, 2.5–4 cm. broad; surface pilose with free, depressed hairs, golden-yellow; lamellae adnexed, broad, concolorous; spores subglobose to broadly ellipsoid, finely echinulate, melleous under the microscope, 5–7 × 4 μ; stipe pulverulent-fibrillose, paler than the pileus, enlarged below, 2.5 cm. long, 8 mm. thick.

TYPE LOCALITY: Cuba.
HABITAT: On dead logs in fields.
DISTRIBUTION: Cuba, Guadeloupe, and Martinique.

71. **Gymnopilus chrysopellus** (Berk. & Curt.) Murrill, Mycologia 5: 23. 1913.

Agaricus chrysopellus Berk. & Curt. Jour. Linn. Soc. **10**: 290. 1868.
Flammula chrysopella Sacc. Syll. Fung. **5**: 813. 1887.

Pileus umbilicate, sometimes depressed, cespitose, 4 cm. broad; surface appressed-tomentose, golden-yellow, margin subsulcate; lamellae decurrent, broad, lurid-golden; spores broadly ellipsoid, often nearly globose, smooth, melleous under the microscope, 6–7 × 4–5 μ; stipe elongate, slender, fuscous, thickened at the base, 8 cm. long, 4–7 mm. thick.

TYPE LOCALITY: Cuba.
HABITAT: On dead wood.
DISTRIBUTION: Known only from the type locality.

72. **Gymnopilus aureobrunneus** (Berk. & Curt.) Murrill, Mycologia 5: 19. 1913.

Agaricus aureobrunneus Berk. & Curt. Jour. Linn. Soc. **10**: 289. 1868.
Flammula aureobrunnea Sacc. Syll. Fung. **5**: 813. 1887.

Pileus thin, 5 cm. broad; surface appressed-fibrillose, golden-yellow, margin inflexed; lamellae adnate, broad, golden; spores subglobose to broadly ellipsoid, smooth, 5–7 × 3.5–4 μ; stipe solid, pale-fuscous, appressed-pilose, 8 cm. long, 8 mm. thick.

TYPE LOCALITY: Cuba.
HABITAT: On logs and stumps.
DISTRIBUTION: Cuba.

73. **Gymnopilus hispidus** (Massee) Murrill, Mycologia 5: 24. 1913.

Flammula hispida Massee, Jour. Bot. **30**: 161. 1892.

Pileus fleshy, umbilicate or somewhat infundibuliform, becoming explanate, 2.5 cm. broad; surface dry, smooth, hispid with erect, acute squamules, ochraceous-fulvous; lamellae adnate,

subdecurrent, crowded, broad, golden to fulvous-ferruginous, the edges paler and crenulate; spores ellipsoid, apiculate at the base, ferruginous, 7 × 5 μ; stipe fibrillose, pallid, hollow, attenuate above, 2–2.5 cm. long.

TYPE LOCALITY: Chateau Belair, St. Vincent, West Indies.
HABITAT: On decayed trunks.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATIONS: Jour. Bot. **30**: *pl. 323, f. 31–33.*

74. **Gymnopilus palmicola** Murrill, Mycologia 5: 23. 1913.

Flammula palmicola Murrill, Mycologia 5: 36. 1913.

Pileus convex to expanded, at length depressed, cespitose, 2–5 cm. broad; surface dry, floccose-squamose, pale-ferruginous to ochraceous, margin even, not striate; lamellae adnate, subcrowded, broad, at length ventricose, ferruginous at maturity; spores ellipsoid, ferruginous, echinulate-punctate, 10 × 6 μ; stipe cylindric, slightly fibrillose, subconcolorous but paler, solid, fleshy, yellowish within, 3–5 cm. long, 3–5 mm. thick; veil strongly developed, pale-yellowish, subannulate.

TYPE LOCALITY: Cooper's ranch at the base of El Yunque, near Baracoa, Cuba.
HABITAT: On dead logs.
DISTRIBUTION: Known only from the type locality.

75. **Gymnopilus pholiotoides** Murrill, Mycologia 5: 24. 1913.

Flammula pholiotoides Murrill, Mycologia 5: 36. 1913.

Pileus firm, fleshy, convex, scattered, 3 cm. broad; surface ochraceous, cracking into scales, margin thin, not striate; context yellowish-white, mild to the taste; lamellae short-decurrent, crowded, of medium width, pale-ochraceous to bright-ferruginous; spores ellipsoid, conspicuously echinulate, ferruginous, 9 × 5 μ; stipe subcylindric, concolorous or paler, slightly fibrillose, solid, 3 cm. long, 5 mm. thick; veil thick, membranous, forming an annulus, at least in young hymenophores.

TYPE LOCALITY: Managua, Cuba.
HABITAT: On a dead royal palm trunk.
DISTRIBUTION: Known only from the type locality.

76. **Gymnopilus parvulus** Murrill, Mycologia 5: 19. 1913.

Flammula parvula Murrill, Mycologia 5: 36. 1913.

Pileus convex to nearly plane, subcespitose, reaching 2–4 cm. broad; surface moist but not viscid, flavous-ochraceous when young, becoming somewhat darker with age, decorated with conspicuous, erect, pointed scales or fibrils, which are isabelline to fulvous in color, margin striate, undulate, incurved on drying; context thin, pale-ochraceous, slightly bitter; lamellae narrow, subcrowded, adnate, sometimes with a decurrent tooth, isabelline to ferruginous-fulvous; spores ellipsoid, nearly smooth, ferruginous, 6–7 × 4 μ; stipe stout, concolorous or darker, slightly blackish toward the base, especially on drying, fibrillose, solid, becoming hollow, rather fragile, 2–4 cm. long, 3–5 mm. thick; veil delicate, consisting of yellow fibrils, evanescent.

TYPE LOCALITY: Castleton Gardens, Jamaica.
HABITAT: On dead logs.
DISTRIBUTION: Jamaica.

77. **Gymnopilus hispidellus** Murrill, Mycologia 5: 24. 1913.

Flammula hispidella Murrill, Mycologia 5: 36. 1913.

Pileus thin, convex, scattered or subcespitose, 2–4 cm. broad; surface pale-ochraceous. fibrillose, often punctate-squamose with erect, ferruginous scales, margin not striate; context slightly bitter; lamellae adnate, subcrowded, not uniform in breadth, yellow to fuscous-ferruginous; spores ellipsoid, fuscous-ferruginous, strongly punctate, 7 × 5 μ; stipe cylindric, subfibrillose, concolorous with darker base, solid, 2–4 cm. long, 2–4 mm. thick; veil yellowish, subannulate.

TYPE LOCALITY: Cooper's ranch at the base of El Yunque, near Baracoa, Cuba.
HABITAT: On old logs.
DISTRIBUTION: Known only from the type locality.

78. Gymnopilus bryophilus Murrill, Mycologia 5: 22. 1913.

Flammula bryophila Murrill, Mycologia 5: 36. 1913.

Pileus convex, obtuse, gregarious, 2–5 cm. broad; surface uniformly ferruginous, dry, densely appressed-fibrillose, margin not striate; lamellae sinuate with a decurrent tooth, crowded, plane, broad, concolorous; spores subglobose, smooth, pale-ferruginous, 6 × 5 μ; stipe cylindric, often eccentric, fibrillose, pale-fuscous, fleshy, solid, yellow within, 2–4 cm. long, 3–4 mm. thick.

TYPE LOCALITY: Port Antonio, Jamaica.
HABITAT: On a decayed mossy log.
DISTRIBUTION: Known only from the type locality.

79. Gymnopilus subpenetrans Murrill, Mycologia 5: 20. 1913.

Flammula subpenetrans Murrill, Mycologia 5: 36. 1913.

Pileus broadly convex to expanded, rather thick, 2–4 cm. broad; surface moist, not viscid, slightly fibrillose, ferruginous-orange, margin rather thick, not striate; context whitish, mild but unpleasant to the taste; lamellae sinuate with a long-decurrent tooth, soon separating from the stipe; spores ellipsoid, punctate or nearly smooth, ferruginous, 8–10 × 4–5 μ; stipe slightly tapering downward, concolorous, not paler below, somewhat fibrillose, solid with spongy interior, about 3 cm. long and 3 mm. thick.

TYPE LOCALITY: Managua, Cuba.
HABITAT: On dead wood.
DISTRIBUTION: Cuba and Jamaica.

80. Gymnopilus Nashii Murrill, Mycologia 5: 23. 1913.

Flammula Nashii Murrill, Mycologia 5: 36. 1913.

Pileus convex, densely cespitose, 2–4 cm. broad; surface ochraceous, dry, densely floccose, squamose, margin not striate; lamellae adnate, subcrowded, broad, fuscous-ferruginous; spores ellipsoid, smooth, ferruginous, 7–7.5 × 4–5 μ; stipe subcylindric, enlarged at the apex, concolorous, darker below, fibrillose, firm, fleshy, becoming fistulose, 4–7 cm. long, 3–6 mm. thick; veil pale-yellowish, scanty.

TYPE LOCALITY: Port Margot, Haïti.
HABITAT: On old logs.
DISTRIBUTION: Haïti, Santo Domingo, and Cuba.

81. Gymnopilus Earlei Murrill, Mycologia 5: 22. 1913.

Flammula Earlei Murrill, Mycologia 5: 36. 1913.

Pileus rather thick, tough, convex to expanded, cespitose, 3–6 cm. broad; surface dry, fibrillose and floccose-squamose, pale-ferruginous, margin uneven, somewhat fluted, not striate; context mild to the taste, said to be edible when young; lamellae adnate or subdecurrent, rather broad, subcrowded, ferruginous, darker than the surface of the pileus; spores ellipsoid, ferruginous, conspicuously punctate, 7–8 × 4–5 μ; stipe cylindric, densely ferruginous-fibrillose, subconcolorous, solid, tough, horny, nearly black within, 4–6 cm. long, 4–8 mm. thick.

TYPE LOCALITY: Port Antonio, Jamaica.
HABITAT: On cocoanut logs.
DISTRIBUTION: Port Antonio, Jamaica.

82. Gymnopilus depressus Murrill, Mycologia 5: 20. 1913.

Flammula depressa Murrill, Mycologia 5: 36. 1913.

Pileus convex to deeply depressed, gregarious or cespitose, reaching 8–10 cm. broad; surface dry, densely floccose-scaly, becoming subglabrous, dull-yellowish, at length dull-rusty-brown, margin not striate, strongly inflexed on drying; lamellae short-decurrent, subdistant, broad, yellow to ferruginous; spores ellipsoid, minutely punctate, ferruginous, 7 × 4 μ; stipe subcylindric, slightly enlarged at the apex and base, slightly paler than the pileus, yellowish above, minutely scaly-fibrillose throughout, fleshy, yellow within, solid when young, becoming

fistulose with age, 4–8 cm. long, 6–10 mm. thick; veil delicate, consisting of yellow fibrils, evanescent.

TYPE LOCALITY: Hope Gardens, Jamaica.
HABITAT: On a dead log.
DISTRIBUTION: Known only from the type locality.

83. Gymnopilus tenuis Murrill, Mycologia 5: 22. 1913.

Flammula tenuis Murrill, Mycologia 5: 36. 1913.

Pileus rather thin, convex to expanded, obtuse, cespitose, 6–10 cm. broad; surface pale-yellow to ferruginous, dry, fibrillose to floccose-scaly, at length subglabrous, margin thin, not striate, often uneven and undulate; lamellae decurrent, crowded, narrow, yellow to ferruginous; spores ellipsoid, ferruginous, minutely punctate, $7 \times 4\ \mu$; stipe cylindric, slightly fibrillose, ferruginous-brown, often whitish at the base, hollow, the rind becoming hard and horny on drying, 4–6 cm. long, 5–8 mm. thick; veil of bright-yellow fibers, soon vanishing.

TYPE LOCALITY: Port Antonio, Jamaica.
HABITAT: On dead wood.
DISTRIBUTION: Jamaica, Cuba, and the Bahamas.

84. Gymnopilus areolatus Murrill, Mycologia 5: 24. 1913.

Flammula areolata Murrill, Mycologia 5: 36. 1913.

Pileus thick, fleshy, convex, cespitose, 6–7 cm. broad; surface dry, imbricate-scaly, dirty-orange-yellow, margin entire; context yellowish-white, slightly bitter; lamellae adnate, separating from the stipe, subcrowded, broad, ventricose, often notched, yellowish-ferruginous; spores ellipsoid, ferruginous, tuberculate, $9–11 \times 6–7\ \mu$; stipe cylindric, often curved, concolorous or paler, subglabrous, solid, 3–5 cm. long, 4–6 mm. thick.

TYPE LOCALITY: Santiago de las Vegas, Cuba.
HABITAT: On stumps.
DISTRIBUTION: Cuba.

85. Gymnopilus lateritius (Pat.) Murrill, Mycologia 5: 19. 1913.

Flammula lateritia Pat. Bull. Soc. Myc. Fr. 16: 176. 1900.

Pileus convex, slightly umbonate, thin, 2–5 cm. broad; surface dark-brick-colored, punctate toward the center with erect, distant, brown scales, margin not striate, sinuous; lamellae adnate, somewhat decurrent, distant, broad, red-brick-colored; spores ovoid, verrucose, reddish-brown, $8–10 \times 5–6\ \mu$; stipe tough, slender, cylindric, equal, glabrous, brownish-red, 3–4 cm. long.

TYPE LOCALITY: Pointe-Noire, Guadeloupe.
HABITAT: On dead wood.
DISTRIBUTION: Guadeloupe and Martinique.

DOUBTFUL AND EXCLUDED SPECIES

Flammula anepsia (Mont.) Sacc. Syll. Fung. 5: 812. 1887. (*Agaricus anepsius* Mont. Syll. Crypt. 118. 1856.) When examining the type of this species at Paris, I remarked that it was about the shape of *G. carbonarius* and was probably that species. The spores, however, are described as $10\ \mu$ long, while those of *G. carbonarius* are usually somewhat smaller.

Flammula Braendlei Peck, Bull. Torrey Club 31: 180. 1904. Described from Washington, D. C. This species is to be carefully compared with *G. pulchrifolia* and *Pholiota aeruginosa.*

Flammula flavida (Schaeff.) Quél. Champ. Jura Vosg. 98. 1872. (*Agaricus flavidus* Schaeff. Fung. Bavar. 4: Ind. 17. 1774.) Reported from many parts of the United States, but the specimens I have seen so named do not at all correspond with the original figures by Schaeffer or with specimens sent from Sweden by Romell. See *G. flavidellus.*

Flammula fusa (Batsch) Gill. Champ. Fr. 535. 1876. (*Agaricus fusus* Batsch, Elench. Fung. Contin. 2: 13. 1789.) Reported from Iowa by Macbride and from Ohio by Hard. Specimens so named by Hard are to be found at Albany. They appear quite distinct, but I have not been able to compare them with specimens just received from Romell.

Flammula inopoda (Fries) P. Karst. Bidr. Finl. Nat. Folk **32**: 407. 1879. (*Agaricus inopus* Fries, Obs. Myc. **2**: 32. 1818.) Reported from North Carolina, but I find nothing in America to correspond to specimens from Bresadola.

Flammula lubrica (Pers.) Quél. Champ. Jura Vosg. 232. 1872. (*Agaricus lubricus* Pers. Syn. Fung. 307. 1801. Not *A. lubricus* Scop. 1772.) Reported from New York by Peck, but his specimens do not appear to have been correctly determined.

Flammula mixta (Fries) P. Karst. Bidr. Finl. Nat. Folk **32**: 403. 1879. (*Agaricus mixtus* Fries, Epicr. Myc. 185. 1838.) Reported by Kauffman from the Adirondacks. I have not seen his specimens, but find nothing at Albany to match specimens from Bresadola.

Flammula peregrina (Fries) Sacc. Syll. Fung. **5**: 814. 1887. (*Agaricus peregrinus* Fries, Elench. Fung. **1**: 31. 1828.) Collected by Benzon on trunks in Santa Cruz, West Indies. Types not found.

Flammula picrea (Pers.) Gill. Champ. Fr. 533. 1876. (*Agaricus picreus* Pers. Ic. Descr. Fung. 14. 1798.) Reported from Greenland and from North Carolina. I have seen no American material that corresponds with specimens from Romell.

Flammula ricensis (Fries) Sacc. Syll. Fung. **5**: 814. 1887. (*Agaricus ricensis* Fries, Nova Acta Soc. Sci. Upsal. III. **1**: 24. 1851.) Collected by Oersted on the ground in Costa Rica. It was not figured, but a number of specimens were preserved, none of which could be found either at Upsala or Copenhagen. It differs from most tropical species of the genus in being terrestrial.

Flammula sapinea (Fries) Quél. Champ. Jura Vosg. 98. 1872. (*Agaricus sapineus* Fries, Syst. Myc. **1**: 239. 1821.) Reported from most of North America, but confused with *G. penetrans*, which seems to account for all the American material examined.

Gymnopilus viridans Murrill, Mycologia **4**: 257. 1912. (*Flammula viridans* Murrill, Mycologia **4**: 262. 1912.) Described from specimens collected near Seattle, Washington. See *Pholiota aeruginosa* and *P. aegerita*.

72. HEBELOMA (Fries) Quél. Champ. Jura Vosg. 95. 1872.

Agaricus § *Hebeloma* Fries, Epicr. Myc. 170. 1838.
Roumegueria P. Karst. Bidr. Finl. Nat. Folk **32**: 452. 1879.
Hylophila Quél. Ench. Fung. 98. 1886.
Hebelomatis Earle, Bull. N. Y. Bot. Gard. **5**: 430. 1909.
Picromyces (Batt.) Earle, Bull. N. Y. Bot. Gard. **5**: 438. 1909.

Pileus fleshy, putrescent, solitary or gregarious, usually thick, viscid, glabrous, somewhat fibrillose or squamulose in a few species; lamellae sinuate or adnexed, usually clay-colored; spores smooth, ochraceous; stipe central, fleshy, rarely fibrous, usually stout, whitened at the apex; veil when present very slight and soon evanescent.

Type species, *Hebeloma mesophaeum* (Pers.) Quél.

I. SPECIES OCCURRING IN TEMPERATE NORTH AMERICA, EXCEPT THOSE CONFINED TO THE PACIFIC COAST

Pileus 1–2.5 cm. broad.	
Pileus uniformly white.	1. *H. sarcophyllum.*
Pileus whitish, blackish-brown on the disk.	2. *H. fuscodiscum.*
Pileus uniformly pale-yellowish.	
Stipe 1–2 mm. thick.	3. *H. fragilius.*
Stipe 2–4 mm. thick.	4. *H. excedens.*
Pileus pale-yellowish-brown, sometimes darker on the disk.	5. *H. gregariiforme.*
Pileus gray or clay-colored, brownish on the disk; stipe 2.5–3.5 cm. long.	6. *H. Sterlingii.*
Pileus grayish-rosy-isabelline, bay on the disk; stipe 5–6 cm. long.	7. *H. paludicola.*
Pileus 2.5–5 cm. broad.	
Pileus uniformly white, grayish-white, or yellowish-white.	
Stipe about 3 cm. long.	
Species occurring among short grass in pastures.	8. *H. sociale.*
Species occurring on the ground in woods.	9. *H. vatricosum.*
Stipe 3–7 cm. long.	
Stipe 3 mm. thick.	10. *H. kalmicola.*
Stipe 4–6 mm. thick.	
Spores 10–12 μ long.	11. *H. albidulum.*
Spores 12–16 μ long.	12. *H. album.*
Pileus whitish, often reddish at the center.	13. *H. vatricosoides.*
Pileus uniformly ochraceous-isabelline; stipe reaching 4 cm. long.	14. *H. praecox.*

Pileus uniformly dingy-buff or clay-brown; stipe reaching 7.5 cm. long. 15. *H. flexuosipes.*
Pileus rosy-isabelline, darker or cremeous on the disk.
Stipe 3–5 mm. thick. 16. *H. Earlei.*
Stipe 10 mm. thick. 17. *H. appendiculatum.*
Pileus some shade of isabelline, yellowish-brown, or fulvous, darker and differently colored on the disk.
Stipe 2–4 mm. thick.
Stipe 3–5 cm. long.
Spores 6.5–8.5 μ long. 18. *H. Tottenii.*
Spores 10–11 μ long. 19. *H. gregarium.*
Stipe 5–7 cm. long. 20. *H. mesophaeum.*
Stipe 4–6 mm. thick.
Spores 7–8 μ long. 21. *H. alabamense.*
Spores 10 μ long. 22. *H. pascuense.*
Stipe 8 mm. thick. 23. *H. exiguifolium.*
Pileus uniformly chestnut-colored, reddish-gray, pale-ochraceous, or grayish. 24. *H. velatum.*
Pileus grayish-brown when moist, paler when dry; stipe 5–7 cm. long, 4–8 mm. thick. 25. *H. palustre.*
Pileus dark-brown when moist, paler when dry; stipe 3.5–5 cm. long, 4 mm. thick. 26. *H. illicitum.*
Pileus brownish-red or tawny-brown; stipe 2.5 cm. long, 3–4 mm. thick. 27. *H. sordidulum.*
Pileus reddish-brown or chestnut; stipe 4–6 cm. long, 2–4 mm. thick. 28. *H. discomorbidum.*
Pileus 5–10 cm. or more broad.
Pileus bright-yellow.
Pileus glabrous. 29. *H. luteum.*
Pileus clothed with concentric, brown scales. 30. *H. flavum.*
Pileus not bright-yellow.
Stipe 2–6 mm. thick.
Spores 10–12 × 5–6 μ. 31. *H. Colvini.*
Spores 12–15 × 7–8 μ. 32. *H. neurophyllum.*
Stipe 6–10 mm. thick.
Spores 6–7 × 4–5 μ.
Stipe dingy-white. 33. *H. commune.*
Stipe ferruginous or brownish below. 34. *H. parvifructum.*
Spores 10–12 × 5–7 μ. 35. *H. crustuliniforme.*
Stipe 25 mm. thick. 36. *H. sinapizans.*

II. SPECIES OCCURRING ON THE PACIFIC COAST

Pileus aeruginous. 37. *H. aeruginosum.*
Pileus pale-olive-brown. 38. *H. sericipes.*
Pileus latericious. 39. *H. lateritium.*
Pileus some shade of yellow, yellowish-brown, or reddish-brown.
Pileus 1.5–2.5 cm. broad. 40. *H. dryophilum.*
Pileus 4–5 cm. broad. 41. *H. Harperi.*
Pileus 5–7 cm. broad.
Lamellae pale-ochraceous-brown. 42. *H. Bakeri.*
Lamellae darker-brown. 43. *H. cremeum.*
Pileus 7–10 cm. or more broad.
Pileus cream-colored.
Pileus broadly umbonate. 44. *H. californicum.*
Pileus not umbonate. 45. *H. farinaceum.*
Pileus isabelline. 36. *H. sinapizans.*

III. SPECIES CONFINED TO TROPICAL NORTH AMERICA

Pileus white or pale-isabelline.
Stipe 2–4 mm. thick. 46. *H. Broadwayi.*
Stipe 7–10 mm. thick. 47. *H. cinchonense.*
Pileus pale-testaceous, scarcely 1 cm. broad. 48. *H. subtestaceum.*
Pileus incarnate-isabelline, 2–2.5 cm. broad. 49. *H. subincarnatum.*
Pileus chestnut-brown. 50. *H. cubense.*

1. **Hebeloma sarcophyllum** (Peck) Sacc. Syll. Fung. **5**: 804. 1887.

Agaricus sarcophyllus Peck, Ann. Rep. N. Y. State Cab. **23**: 96. 1872.

Pileus fleshy, obtusely conic or convex, 1.5–2.5 cm. broad; surface glabrous, white; context white, the taste bitterish; lamellae subcrowded, adnexed, deeply sinuate, dingy-flesh-colored; spores dark-ferruginous, subellipsoid, 8–10 × 5–6 μ; stipe equal, firm, stuffed, mealy or minutely squamulose at the apex, white, 2.5–4 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Greenbush, New York.
HABITAT: On wet, grassy ground.
DISTRIBUTION: New York.
ILLUSTRATIONS: Ann. Rep. N. Y. State Cab. **23**: *pl. 1, f. 7–11.*

2. **Hebeloma fuscodiscum** (Peck) Sacc. Syll. Fung. 5: 796. 1887.

Agaricus fuscodiscus Peck, Ann. Rep. N. Y. State Mus. 27: 95. 1875.
Inocybe fuscodisca Massee, Ann. Bot. 18: 487. 1904.

Pileus conic to campanulate or expanded, umbonate, 1–2.5 cm. broad; surface subviscid, whitish, blackish-brown on the disk, with blackish-brown fibrils; context having the odor of chestnut flowers; lamellae crowded, white to brown, roughened on the edges; spores pip-shaped, smooth, 8–10 × 5–5.5 μ; cystidia ventricose, fairly numerous, 45–55 × 12–16 μ; stipe equal, solid, white and pruinose at the apex, brown and fibrillose below, 2.5–8 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Forestburgh, New York.
HABITAT: In pastures under trees.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. 27: *pl. 1, f. 3–6.*

3. **Hebeloma fragilius** (Peck) Sacc. Syll. Fung. 5: 798. 1887.

Agaricus fragilior Peck, Ann. Rep. N. Y. State Mus. 27: 95. 1875.

Pileus thin, fragile, convex, becoming plane or centrally depressed, about 1 cm. broad; surface minutely squamulose when young, soon glabrous, pale-grayish-ochraceous, margin sometimes irregular or wavy; lamellae subdistant, ventricose, adnexed, whitish and crenulate on the edges, subochraceous; spores ellipsoid, 6 × 4 μ; stipe slender, equal, hollow, minutely furfuraceous, becoming glabrous, concolorous, about 2.5 cm. long, 1–2 mm. thick.

TYPE LOCALITY: Indian Lake, New York.
HABITAT: On damp, decaying leaves in water holes in swamps.
DISTRIBUTION: Known only from the type locality.

4. **Hebeloma excedens** (Peck) Sacc. Syll. Fung. 5: 806. 1887.

Agaricus excedens Peck, Ann. Rep. N. Y. State Mus. 24: 68. 1872.

Pileus thin, convex, obtuse or broadly umbonate, 1–2.5 cm. broad; surface glabrous, pale-alutaceous, margin projecting; context having the odor and taste of radishes; lamellae crowded, deeply sinuate, adnexed, moderately broad, minutely eroded on the edges, pallid, becoming brownish-ferruginous; spores subellipsoid, 10–12 × 6–7 μ; stipe equal, solid, silky-fibrillose, concolorous, 3–5 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Saratoga, New York.
HABITAT: On sandy soil under or near pine trees.
DISTRIBUTION: Known only from the type locality.

5. **Hebeloma gregariiforme** Murrill, sp. nov.

Pileus convex to expanded, rather thin, gregarious, 2–2.5 cm. broad; surface smooth, glabrous, viscid, pale-yellowish-brown, sometimes slightly darker on the disk, margin entire, concolorous; lamellae adnate or slightly sinuate, subcrowded, many times inserted, rather narrow, creamy-white, becoming pale-dingy-yellowish-brown; spores ovoid, smooth, melleous under the microscope, 8–9 × 5–6 μ; stipe slender, concolorous, smooth, glabrous, about 5 cm. long and 3 mm. thick; veil slight, arachnoid, evanescent.

Type collected on the ground in pine woods at Auburn, Alabama, December 26, 1899, *F. S. Earle* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

6. **Hebeloma Sterlingii** (Peck) Murrill.

Inocybe Sterlingii Peck, Bull. Torrey Club 33: 217. 1906.

Pileus fleshy, convex to nearly plane, solitary or gregarious, 1.5–2.5 cm. broad; surface glabrous, slightly viscid at the center when moist, gray or clay-colored, the center brownish, margin obscurely fibrillose, incurved, subappendiculate; context having a farinaceous taste, edible; lamellae adnexed, crowded, thin, pallid, becoming cinnamon; spores ellipsoid, smooth, usually uniguttulate, 10–12 × 6–8 μ; stipe equal or slightly thickened at the base, floccose-fibrillose, white, bay-red within, solid, 2.5–3.5 cm. long, 2–4 mm. thick; veil fibrillose or webby, forming an evanescent annulus.

TYPE LOCALITY: Trenton, New Jersey.
HABITAT: Under spruce trees.
DISTRIBUTION: Known only from the type locality.

7. **Hebeloma paludicola** Murrill, sp. nov.

Pileus small, thin, convex to expanded, gregarious, 1–2 cm. broad; surface viscid, smooth, glabrous, grayish-rosy-isabelline, bay on the disk in mature specimens and over most of the surface in young stages, margin entire, concolorous; lamellae sinuate, ventricose, subdistant, pallid to clay-colored; spores ovoid, smooth, melleous, tapering toward the apex, obliquely apiculate at the base, 9–10 × 6 μ; stipe long, slender, equal, white, whitish-fibrillose from the remains of the slight, evanescent veil, much twisted in dried specimens, 5–6 cm. long, 3–4 mm. thick.

Type collected among sphagnum in marshy ground at Lake Placid, Adirondack Mountains, New York, October 3–14, 1912, *W. A. & Edna L. Murrill 776* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

8. **Hebeloma sociale** Peck, Bull. N. Y. State Mus. **75**: 15. 1904.

Pileus fleshy but thin, convex, becoming plane or nearly so, gregarious or subcespitose, 3 cm. broad; surface glabrous, slightly viscid when moist, yellowish-white; context yellowish-white, the taste nauseous; lamellae thin, crowded, adnexed, whitish, becoming yellowish, and finally brownish-ferruginous; spores ellipsoid, brownish-ferruginous, 6–8 × 4–5 μ; stipe short, fibrous, floccose-fibrillose, hollow, white, 2.5–3.5 cm. long, 3–6 mm. thick.

TYPE LOCALITY: Menands, New York.
HABITAT: Among short grass in pastures.
DISTRIBUTION: Known only from the type locality.

9. **Hebeloma vatricosum** (Fries) Murrill.

Agaricus vatricosus Fries, Obs. Myc. **2**: 46. 1818.
Inocybe vatricosa Quél. Ench. Fung. 98. 1886.

Pileus subfleshy, convex to plane, subumbonate, gregarious or subcespitose, 3 cm. broad; surface glabrous, viscid, whitish or argillaceous-white, margin silky; context thin, watery, without odor; lamellae emarginate, ventricose, white to brownish; spores ellipsoid, smooth, 8–9 × 5 μ (Kauffman), 5–6 × 3–3.5 μ (Massee); stipe contorted, curved, subconcolorous, hollow, pulverulent, white-squamulose at the apex, 3 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Sweden.
HABITAT: On the ground in woods.
DISTRIBUTION: Eastern United States; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 403b (443)*; Fries, Ic. Hymen. *pl. 110, f. 3*.

10. **Hebeloma kalmicola** Murrill, sp. nov.

Pileus convex, not fully expanding, slightly depressed at the center with age, not umbonate, gregarious, 2.5–3.5 cm. broad; surface moist, subglabrous, uniformly yellowish-white to cream-colored, margin entire, concolorous, not striate; context thin, with slightly unpleasant taste and no odor; lamellae adnexed or sinuate, very broad, of medium distance, thin, yellowish-white to dirty-white, entire and concolorous on the edges; spores ellipsoid, smooth, pale-yellow, uniguttulate, about 12 × 7 μ; stipe slender, cylindric, equal, fibrillose, slightly darker than the pileus, hollow, 5 cm. long, 3 mm. thick.

Type collected on a much decayed mossy stump of *Kalmia latifolia* on Apple Orchard Mountain, near Bedford, Virginia, October 24–27, 1916, *W. A. Murrill* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

11. **Hebeloma albidulum** Peck, Ann. Rep. N. Y. State Mus. **54**: 148. 1901.

Pileus fleshy, firm, broadly convex or nearly plane, 2.5–5 cm. broad; surface glabrous, slightly viscid when moist, dingy-white or grayish-white; context white; lamellae crowded, narrow, adnexed, whitish, becoming brownish-ferruginous, white and minutely denticulate on the edges; spores subellipsoid, obtuse, 10–12 × 6–8 μ; stipe equal, firm, glabrous, slightly mealy or pruinose at the apex, hollow, sometimes slightly bulbous, concolorous, 3–6 cm. long, 4–6 mm. thick.

TYPE LOCALITY: Westport, New York.
HABITAT: Among fallen leaves in woods.
DISTRIBUTION: New York.

12. **Hebeloma album** Peck, Ann. Rep. N. Y. State Mus. 54: 147. 1901.

Pileus fleshy, firm, convex, becoming nearly plane or concave, gregarious, 2.5–5 cm. broad; surface glabrous, subviscid, white or yellowish-white, margin curving upward; context white; lamellae thin, narrow, crowded, sinuate-adnexed, whitish, becoming cinnamon or rust-colored when mature; spores subellipsoid, pointed at one or both ends, 12–16 × 6–8 μ; stipe equal, firm, rather long, solid or stuffed, slightly mealy at the apex, white, 3.5–7 cm. long, 4–6 mm. thick.

Type locality: Westport, New York.
Habitat: On the ground among fallen leaves in woods.
Distribution: Known only from the type locality.
Illustrations: Ann. Rep. N. Y. State Mus. 54: *pl. G, f. 1–7;* Bull. N. Y. State Mus. 139: *pl. 117, f. 1–6.*

13. **Hebeloma vatricosoides** (Peck) Murrill.

Inocybe vatricosoides Peck, Bull. N. Y. State Mus. 139: 67. 1910.

Pileus thin, convex, becoming nearly plane, obtuse or subumbonate, 2.5–4 cm. broad; surface slightly viscid when moist, whitish, often reddish at the center, margin fibrillose from the abundant, whitish, webby veil; context whitish, the odor like that of radishes; lamellae crowded, broadly sinuate, adnate with a decurrent tooth, whitish, becoming brownish-ferruginous, white and crenulate on the edges; spores ellipsoid, smooth, 10–12 × 6–8 μ; stipe equal, flexuous, usually curved at the base, stuffed or hollow, silky-fibrillose, whitish or grayish, sometimes with whitish, floccose scales toward the base, 2.5–5 cm. long, 2–6 mm. thick.

Type locality: Ulster County, New York.
Habitat: On damp soil under trees.
Distribution: Maine to New Jersey in the eastern United States.

14. **Hebeloma praecox** Murrill, Mycologia 3: 166. 1911.

Pileus convex to expanded, slightly umbonate, gregarious, 4–5 cm. broad; surface dry, glabrous, opaque, smooth, ochraceous-isabelline; margin incurved, entire or undulate, showing no trace of a veil; context white, sweet, odor pleasant; lamellae sinuate, arcuate, crowded, many times inserted, pallid when young, fulvous at maturity; spores ovoid, smooth, pale-ochraceous, not conspicuously nucleate, 5–6 × 3–4 μ; stipe fleshy, brittle, subequal, stuffed to hollow, finely scabrous, sometimes rough, cremeous, 3–4 cm. long, 5–8 mm. thick.

Type locality: New York Botanical Garden.
Habitat: Among mosses on shady banks.
Distribution: Southern New York.
Illustration: Mycologia 3: *pl. 49, f. 2.*

15. **Hebeloma flexuosipes** Peck, Bull. N. Y. State Mus. 150: 55. 1911.

Pileus thin, convex, 2.5–5 cm. broad; surface glabrous, slightly viscid when moist, dingy-buff or clay-brown; context white; lamellae crowded, adnate, brownish-ferruginous; spores subellipsoid, brownish-ferruginous, 12–16 × 7–9 μ; stipe equal or slightly thickened at the base, fibrous, flexuous, solid or stuffed, pruinose-pubescent and minutely glandular at the apex, pallid or similar to the pileus in color, with an abundant, white, fibrillose mycelium at the base, 3.5–7.5 cm. long, 4–8 mm. thick.

Type locality: Schenley Park, Pittsburgh, Pennsylvania.
Habitat: On the ground.
Distribution: Known only from the type locality.

16. **Hebeloma Earlei** Murrill, sp. nov.

Pileus convex to plane, solitary or somewhat gregarious, 3–4 cm. broad; surface slightly viscid, smooth, glabrous, rosy-isabelline, somewhat darker on the disk, margin pallid, not striate, silky; context thin, whitish, with mild taste and pleasant odor; lamellae deeply sinuate, subcrowded, rather broad, pallid to subfulvous; spores ovoid, obliquely apiculate at the base,

very pale melleous under the microscope, smooth, 9–10 × 6 μ; stipe equal, glabrous, shining, minutely floccose above, white, solid, 3–4 cm. long, 3–5 mm. thick.

Type collected in soil under beech trees in the New York Botanical Garden, November 12, 1901, *F. S. Earle 51* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

17. **Hebeloma appendiculatum** Murrill, sp. nov.

Pileus convex, not fully expanding, slightly gibbous, rather thick and fleshy, cespitose, 5 cm. broad; surface viscid, silky and also finely imbricate-squamulose, rosy-isabelline, cremeous on the disk, margin deflexed, concolorous, appendiculate with triangular fragments of the slight, evanescent veil; context white, thick at the center, with nutty flavor; lamellae sinuate, broad behind and tapering in front, quite narrow, arcuate, very much crowded, pale-cream-colored, not darkening on drying, the edges pallid and distinctly crenate or dentate; spores ellipsoid, smooth, pale-clay-colored in mass, pale-melleous under the microscope, 6–7 × 3–4 μ; stipe equal, spongy-stuffed with creamy-white pith, glabrous at the apex, white above, concolorous below, revolute-squamulose, 4 cm. long, 1 cm. thick.

Type collected on the ground at the base of a sugar maple tree on a lawn in the New York Botanical Garden, September 4, 1912, *W. A. Murrill* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

18. **Hebeloma Tottenii** Murrill, sp. nov.

Pileus convex to plane, usually becoming depressed, often slightly umbonate, gregarious or cespitose, 2.5–4 cm. broad; surface smooth, glabrous, shining, reddish-tawny at the center and shading to whitish-buff on the margin; context thin, pale-buff, without characteristic taste or odor; lamellae sinuate, broad, not crowded, melleous to fulvous or brown; spores ellipsoid, smooth, fulvous in mass, 6.5–8.5 × 4–5 μ; stipe slightly tapering downward, smooth, hollow, whitish-buff above, reddish-tawny below, sometimes decorated near the base with long, coarse, white hairs, 3–4 cm. long, 2–3 mm. thick.

Type collected on the ground under pines near Chapel Hill, North Carolina, December 10, 1914, *H. R. Totten 1509* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

19. **Hebeloma gregarium** Peck, Ann. Rep. N. Y. State Mus. 49: 32 (18). 1897.

Pileus thin, hemispheric or convex, obtuse or rarely with a small, inconspicuous umbo, gregarious, 2.5–3.5 cm. broad; surface slightly viscid when moist, glabrous or slightly silky on the margin, pale-ochraceous, sometimes with a reddish or tawny tint at the center; context whitish; lamellae thin, crowded, adnate, whitish, becoming subcinnamon-colored; spores ellipsoid, 10–11 × 5–6 μ; stipe slender, stuffed or hollow, fibrillose, whitish, slightly mealy or pruinose at the apex, 3–5 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Delmar, New York.
HABITAT: On sandy soil in heathy places.
DISTRIBUTION: New York and Michigan.

20. **Hebeloma mesophaeum** (Pers.) Quél. Champ. Jura Vosg. 95. 1872.

Agaricus fastibilis mesophaeus Pers. Myc. Eur. 3: 173. 1828.
Agaricus mesophaeus Fries, Epicr. Myc. 179. 1838.

Pileus somewhat fleshy, conic-convex to plane, 3–4 cm. broad; surface viscid, isabelline, bay or umbrinous on the disk, margin even, almost naked; lamellae emarginate, crowded, thin, entire; spores 8–10 × 5–6 μ; stipe tough, slender, equal, fibrillose, pruinose at the apex, whitish, becoming rusty, subfistulose, 5–7 cm. long, 4 mm. thick; veil fugacious.

TYPE LOCALITY: Europe.
HABITAT: On the ground in woods or groves.
DISTRIBUTION: Canada to Alabama in eastern North America; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 411 (452), 412 (453)*.
EXSICCATI: Barth. Fungi Columb. *1930;* Ellis & Ev. N. Am. Fungi *1908* (as *H. versipelle*).

21. **Hebeloma alabamense** Murrill, sp. nov.

Pileus thin, rather fragile, expanded, solitary, 3 cm. broad; surface subviscid, glabrous, bright-yellowish-brown, darker and reddish-brown on the disk, margin thin, not striate, crenulate or wavy; lamellae sinuate-adnate, broad behind, subdistant, thin, ferruginous-cinnamon; spores broadly ellipsoid, 7–8 × 5–6 μ; stipe cylindric, slightly silky-fibrillose, whitish, hollow, fragile, 5–6 cm. long, 4–5 mm. thick.

Type collected on the ground in rich woods at Auburn, Alabama, October 12, 1900, *F. S. Earle* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

22. **Hebeloma pascuense** Peck, Ann. Rep. N. Y. State Mus. 53: 844. 1900.

Pileus thin, convex, becoming nearly plane, gregarious or subcespitose, 2.5–5 cm. broad; surface viscid when moist, obscurely innately fibrillose, brownish-clay-colored, often darker or rufescent at the center, margin often whitened by the thin webby veil when young; context whitish, the odor similar to that of radishes; lamellae crowded, adnexed, whitish, becoming pale-ochraceous; spores subellipsoid, pale-ochraceous, uninucleate, 10 × 6 μ; stipe firm, equal, solid, fibrillose, slightly mealy at the apex, whitish or pallid, 2.5–5 cm. long, 4–6 mm. thick.

TYPE LOCALITY: Warrensburg, New York.
HABITAT: In stony pastures.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. 53: *pl. C, f. 21–27.*

23. **Hebeloma exiguifolium** Murrill, sp. nov.

Pileus convex to expanded or slightly depressed, broadly umbonate, gregarious to subcespitose, 3–5 cm. broad; surface smooth, glabrous, viscid, isabelline to fulvous, usually darker on the umbo, margin entire, pallid; context thick at the center, very thin at the margin, white, the taste becoming somewhat bitterish; lamellae sinuate, crowded, extremely narrow, isabelline to fulvous, whitish-pruinose on the edges; spores ovoid, smooth, melleous under the microscope, obliquely apiculate at the base, 8–9 × 6 μ; stipe subequal, usually abruptly enlarged at the base, white or pale-yellowish, fibrillose, solid, white within, 5 cm. long, about 8 mm. thick.

Type collected on the ground in woods at Pittsford, New York, September 28, 1915, *Fred S. Boughton* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

24. **Hebeloma velatum** Peck, Bull. N. Y. State Mus. 139: 69. 1910.

Hebeloma Colvini velatum Peck, Ann. Rep. N. Y. State Mus. 48: 19. 1897.

Pileus convex, plane or slightly centrally depressed, obtuse or umbonate, gregarious or cespitose, 2.5–5 cm. broad; surface slightly viscid when moist, glabrous or slightly silky from the veil, chestnut-colored, reddish-gray, pale-ochraceous, or grayish, margin silky or floccosely-scaly or appendiculate with the fragments of the veil; lamellae crowded, ventricose, adnexed, whitish, becoming pale-cinnamon, whitish and often crenulate on the edges; spores subellipsoid, 10–12 × 6–8 μ; stipe equal, hollow, silky-fibrillose, sometimes floccosely-squamulose toward the base, often more or less annulate, whitish, 3.5–6 cm. long, 4–6 mm. thick; veil rupturing and disappearing with age or persisting on the margin and stipe, soft, cottony, whitish or grayish.

TYPE LOCALITY: Rouses Point, Clinton County, New York.
HABITAT: In gravelly soil under cottonwood trees.
DISTRIBUTION: New York.

25. **Hebeloma palustre** Peck, Bull. N. Y. State Mus. 5: 649. 1899.

Pileus thin, broadly convex, becoming nearly plane, sometimes wavy or irregular, 2.5–3.5 cm. broad; surface glabrous, hygrophanous, grayish-brown when moist, paler when dry, margin slightly striatulate when moist; context whitish; lamellae crowded, thin, ventricose,

adnexed, grayish-white, becoming brownish-cinnamon; spores subellipsoid, uninucleate, 10–12 × 6–8 μ; stipe equal or tapering upward, hollow, silky, white, 5–7 cm. long, 4–8 mm. thick.

TYPE LOCALITY: Kasoag, New York.
HABITAT: On mossy ground in swampy woods.
DISTRIBUTION: Known only from the type locality.

26. **Hebeloma illicitum** (Peck) Sacc. Syll. Fung. 5: 806. 1887.

Agaricus illicitus Peck, Ann. Rep. N. Y. State Mus. **24**: 68. 1872.

Pileus fleshy, firm, convex or expanded, obtuse, gregarious or cespitose, 2.5–3.5 cm. broad; surface glabrous, hygrophanous, dark-brown when moist, paler when dry; lamellae crowded, broad, ventricose, adnexed, pale-brown; spores subellipsoid, 8–10 × 4–5 μ; stipe equal, firm, hollow, concolorous but paler, striate at the apex, with a white mycelium at the base, 3.5–5 cm. long, 4 mm. thick.

TYPE LOCALITY: Greig, New York.
HABITAT: On decaying logs and sticks in woods.
DISTRIBUTION: New York, Ohio, and Missouri.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **24**: *pl. 4, f. 1–5.*

27. **Hebeloma sordidulum** (Peck) Sacc. Syll. Fung. 5: 806. 1887.

Agaricus sordidulus Peck, Ann. Rep. N. Y. State Mus. **38**: 88. 1885.

Pileus thin, firm, convex, 2.5–4 cm. broad; surface viscid when moist, brownish-red or tawny-brown, paler on the margin; context white, with a radish-like odor; lamellae broad, crowded, rounded behind, slightly adnexed, pallid, becoming brownish-ochraceous; spores subellipsoid, 12–15 × 6–7 μ; stipe short, equal, stuffed or hollow, slightly fibrillose, pruinose at the apex, white, about 2.5 cm. long, 3–4 mm. thick.

TYPE LOCALITY: Karner, New York.
HABITAT: In sandy soil in open bushy places.
DISTRIBUTION: Known only from the type locality.

28. **Hebeloma discomorbidum** Peck, Bull. N. Y. State Mus. 139: 75. 1910.

Agaricus discomorbidus Peck, Bull. Buffalo Soc. Nat. Sci. **1**: 52. 1873.
Naucoria discomorbida Sacc. Syll. Fung. **5**: 842. 1887.

Pileus thin, broadly convex or nearly plane, 2.5–4 cm. broad; surface glabrous, slightly viscid, reddish-brown or chestnut-colored, becoming brown at the center with age or on drying; lamellae crowded, narrow, white or pallid, becoming brownish-ferruginous, white and crenulate on the edges; spores ellipsoid, uninucleate, 10 × 6 μ; stipe equal, stuffed or hollow, slightly mealy at the apex, white, 4–6 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Croghan, New York.
HABITAT: On the ground in woods.
DISTRIBUTION: Northern New York and Massachusetts.

29. **Hebeloma luteum** Murrill, sp. nov.

Pileus large, thick, fleshy, convex to plane, solitary, 5–10 cm. broad; surface smooth, glabrous, viscid, luteous, margin ochraceous, entire, not striate; lamellae sinuate, ventricose, crowded, melleous to ferruginous; spores ellipsoid, smooth, subfulvous in mass, melleous under the microscope, 7–8.5 × 4–5 μ; stipe equal or tapering upward, smooth, dry, glabrous, pearly-white, 5–7 cm. long, 7–15 mm. thick; veil fibrillose, slight, evanescent.

Type collected on the ground in woods at Stockbridge, Massachusetts, September 3, 4, 1911, *W. A. Murrill & W. Gilman Thompson* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Massachusetts.

30. **Hebeloma flavum** Clements, Bot. Surv. Neb. 4: 22. 1896.

Inocybe flava Massee, Ann. Bot. **18**: 497. 1904.

Pileus fleshy, campanulate, 5–6 cm. broad; surface viscid, flavous, clothed with concentric, brown scales, margin incurved, appendiculate; lamellae subsinuate, subcrowded, drab; spores

ovoid, smooth, ochroleucous, 7–8 × 4 μ; cystidia none; stipe thick, short, curved, densely covered except at the base with concentric, floccose, tawny scales, yellow, solid, 3–5 cm. long, 1–2 cm. thick.

TYPE LOCALITY: Bellevue, Nebraska.
HABITAT: On the ground.
DISTRIBUTION: Known only from the type locality.

31. **Hebeloma Colvini** (Peck) Sacc. Syll. Fung. 5: 805. 1887.

Agaricus Colvini Peck, Ann. Rep. N. Y. State Mus. **28**: 49. 1876.

Pileus fleshy, convex or nearly plane, sometimes gibbous or broadly umbonate, rarely centrally depressed, 5–7.5 cm. broad; surface glabrous, grayish or alutaceous with an ochraceous tint; lamellae crowded, broad, sinuate-adnexed, whitish, becoming brownish-ochraceous; spores subellipsoid, 10–12 × 5–6 μ; stipe equal, flexuous, silky-fibrillose, stuffed or hollow above, solid toward the base, whitish, 2.5–8 cm. long, 2–6 mm. thick.

TYPE LOCALITY: West Albany, New York.
HABITAT: In sandy soil in open places.
DISTRIBUTION: New York.

32. **Hebeloma neurophyllum** Atk. Ann. Myc. 7: 370. 1909.

Pileus gregarious, 5–6 cm. broad; surface slightly viscid when moist with a thin gelatinous layer containing floccose threads, ochraceous to tawny-ochraceous; lamellae not crowded, pale-cinnamon-rufous, between vinaceous-cinnamon and cinnamon-rufous, rather broadly sinuate-adnexed, interveined, costate, about 8 mm. broad; spores subfusoid, slightly inequilateral, 12–15 × 7–8 μ; stipe white, fibrous-striate, even or very slightly bulbous, mealy toward the apex, hollow, with loose fibers, 7–8 cm. long, 5–6 mm. thick.

TYPE LOCALITY: Coy Glen, Ithaca, New York.
HABITAT: On the ground in woods.
DISTRIBUTION: Known only from the type locality.

33. **Hebeloma commune** (Peck) Murrill

Cortinarius communis Peck, Ann. Rep. N. Y. State Cab. **23**: 106. 1872.

Pileus fleshy, broadly convex or expanded, 5–7.5 cm. broad; surface whitish or gray tinged with red, the disk deeper colored; lamellae rather broad, not crowded, emarginate and spuriously decurrent-toothed, whitish, becoming ochraceous-cinnamon; spores ellipsoid, smooth, melleous under the microscope, 7 × 4–5 μ; stipe equal, solid or stuffed, not bulbous, white-mealy at the apex, fibrillose below, dingy-white, 5–10 cm. long, 6–10 mm. thick.

TYPE LOCALITY: Center, New York.
HABITAT: In woods and open places.
DISTRIBUTION: Massachusetts and New York.

34. **Hebeloma parvifructum** (Peck) Sacc. Syll. Fung. 5: 805. 1887.

Agaricus parvifructus Peck, Ann. Rep. N. Y. State Mus. **38**: 88. 1885.

Pileus convex, becoming expanded, 5–7 cm. broad; surface slightly viscid, whitish, grayish-brown or pale-chestnut, often paler on the margin; lamellae moderately crowded, slightly sinuate, white, becoming dingy-ochraceous, at first hidden by the copious, white, webby filaments of the veil; spores subochraceous, 6–7 × 4–5 μ; stipe equal, often flexuous, solid, silky-fibrillose, pruinose and substriate at the apex, whitish above, ferruginous or brownish toward the base, 5–8 cm. long, 6–8 mm. thick.

TYPE LOCALITY: West Albany, New York.
HABITAT: On sandy soil in pine woods.
DISTRIBUTION: Known only from the type locality.

35. **Hebeloma crustuliniforme** (Bull.) Quél. Champ. Jura Vosg. 95. 1872.

Agaricus crustuliniformis Bull. Herb. Fr. *pl. 308.* 1786.
Agaricus fastibilis Pers. Syn. Fung. 327. 1801.
Hebeloma fastibile Quél. Champ. Jura Vosg. 96. 1872.

Pileus fleshy, convex, becoming plane, obtuse or with an obtuse umbo, 5–7 cm. broad; surface even, glabrous, slightly viscid when young, whitish-tan or brick-red; context having

an unpleasant taste and the odor of radishes; lamellae crowded, adnexed, narrow, thin, whitish, becoming clay-colored or brownish-ferruginous; spores ellipsoid, unequal, 10–12 × 5–7 μ; cystidia 24–30 × 6 μ; stipe equal, stuffed or hollow, subbulbous, whitish, whitish-squamulose above, 5–10 cm. long, 6–10 mm. thick.

TYPE LOCALITY: France.
HABITAT: On the ground in woods or open places.
DISTRIBUTION: Greenland to North Carolina and west to Wisconsin; also in Europe.
ILLUSTRATIONS: Bull. Herb. Fr. *pl. 308, 546;* Cooke, Brit. Fungi *pl. 507* (*456*), *414* (*457*); Fries, Ic. Hymen. *pl. 111, f. 2;* Sv. Aetl. Svamp. *pl. 64;* Gill. Champ. Fr. *pl. 356* (*306*), *357* (*307*); Lucand, Champ. Fr. *pl. 17;* Pat. Tab. Fung. 1: *f. 342;* Ricken, Blätterp. Deutschl. *pl. 32, f. 1, 2.*
EXSICCATI: Desmaz. Pl. Crypt. *2151;* Herpell, Präp. Hutpilze *25;* Sydow, Myc. Mar. *2716, 3324.*

36. **Hebeloma sinapizans** (Fries) Gill. Champ. Fr. 527. 1876.

Agaricus sinapizans Fries, Epicr. Myc. 180. 1838.

Pileus compact, convex to plane, subrepand, solitary, 7–13 cm. broad; surface glabrous, viscid, pallescent, the disk isabelline; lamellae deeply emarginate, nearly free, crowded, broad, dry, entire, argillaceous-cinnamon; spores ovoid, punctate, somewhat irregular, 12–14 × 7–8 μ; stipe stout, equal, fibrillose, striate, white, the apex white-squamose, 5–15 cm. long, 2.5 cm. thick.

TYPE LOCALITY: Europe.
HABITAT: On the ground in moist coniferous woods.
DISTRIBUTION: New York; Pacific coast; also in Europe.
ILLUSTRATION: Cooke, Brit. Fungi *pl. 413* (*455*).

37. **Hebeloma aeruginosum** Murrill, sp. nov.

Pileus convex, not fully expanding, not umbonate, solitary, 3 cm. broad; surface smooth, glabrous, extremely viscid, aeruginous, margin involute, broadly overhanging, concolorous; lamellae adnate, with decurrent tooth, very broad, subtriangular, not crowded, white to pale-yellowish, entire and concolorous on the edges; spores ovoid, smooth, pale-yellow under the microscope, 8–9 × 6 μ; stipe equal, solid, fleshy, dry, glabrous at the apex, coarsely squamose below, caesious-caeruleous, 4 cm. long, 7 mm. thick.

Type collected among humus in a fir forest at Glen Brook, Oregon, November 7, 1911, *W. A. Murrill 772* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

38. **Hebeloma sericipes** Earle, Bull. N. Y. Bot. Gard. 2: 342. 1902.

Pileus broadly convex to plane or subdepressed, obtuse, solitary, 4–6 cm. broad; surface glabrous on the disk, pale-olive-brown, dry, margin silky-fibrillose, entire; context white, unchanging, the taste mild, pleasant, the odor like chestnut flowers; lamellae sinuate, crowded, subnarrow, nearly plane, white to ochraceous-brown, the edges white, erose; spores ellipsoid or subovoid, varying in size, smooth, often with a large central vacuole, 7–10 × 4–7 μ; stipe equal, subglabrate at the base, the upper half conspicuously silky-fibrillose, white, solid, crisp, 4–6 cm. long, 7–9 mm. thick; veil universal, white, arachnoid.

TYPE LOCALITY: Stanford University, California.
HABITAT: Among oak leaves.
DISTRIBUTION: Known only from the type locality.

39. **Hebeloma lateritium** Murrill, sp. nov.

Pileus convex, becoming nearly plane with age, umbonate, gregarious, 5 cm. broad; surface distinctly viscid, smooth, glabrous, latericious, margin entire, not striate, avellaneous to cream-colored as the moisture escapes; lamellae sinuate, rather crowded, ventricose, pallid to clay-colored, conspicuously whitish-pubescent on the edges; spores ellipsoid, smooth, pale-yellowish under the microscope, 7–8 × 5 μ; stipe enlarged below, white, conspicuously fibrillose, fleshy, 6 cm. long, 7–10 mm. thick.

Type collected in sandy soil at the edge of a virgin forest at Seattle, Washington, October 20–November 1, 1911, *W. A. Murrill 295* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Vicinity of Seattle, Washington.

40. **Hebeloma dryophilum** Murrill, sp. nov.

Pileus rather thin, convex to expanded, somewhat umbonate or gibbous, solitary, 2–2.5 cm. broad; surface viscid, glabrous, smooth, cream-colored, darker on the disk, margin entire, concolorous; context white, without characteristic odor or taste; lamellae sinuate, rather crowded, broad, dark-cream-colored to subfulvous; spores ellipsoid, smooth, melleous under the microscope, 8–9 × 5–6 μ; stipe slightly enlarged at the base, fleshy, white, smooth, finely fibrillose below, 4–5.5 cm. long, 4–6 mm. thick.

Type collected among dead oak leaves at Stanford University, California, December 14, 1901, *C. F. Baker 140* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

41. **Hebeloma Harperi** Murrill, sp. nov.

Pileus convex to plane or slightly depressed, not umbonate, rather thin, gregarious, 4–5 cm. broad; surface glabrous, viscid, smooth or somewhat cracked, isabelline to reddish-brown with a silvery sheen, margin entire, concolorous, not striate; lamellae sinuate, crowded, rather narrow, clay-colored to subfulvous, entire and concolorous on the edges; spores ovoid, smooth, pale-yellowish under the microscope, dark-clay-colored in mass, 9–10 × 5–6 μ; stipe equal, silvery-white, slightly squamulose, 3–4 cm. long, 5–10 mm. thick.

Type collected in rich black soil on a lawn at Berkeley, California, February 20, 1911, *R. A. Harper 55* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

42. **Hebeloma Bakeri** Earle, Bull. N. Y. Bot. Gard. 2: 342. 1902.

Pileus expanded, solitary, 5–7 cm. broad; surface distinctly viscid, glabrous, cream-colored, darker on the disk, margin entire; context white or cream-colored, unchanging, the taste and odor mild; lamellae deeply sinuate, heterophyllous, crowded, subventricose, pale-ochraceous-brown, the edges white and suberoded; spores ellipsoid-ovoid, 10–12 × 6–7 μ, usually with a large central vacuole; stipe long, equal, subglabrous at the base, pruinose at the apex, concolorous, solid, about 8 cm. long and 7 mm. thick.

TYPE LOCALITY: Stanford University, California.
HABITAT: On the ground in woods or groves.
DISTRIBUTION: Pacific coast.

43. **Hebeloma cremeum** Murrill, sp. nov.

Pileus convex to expanded, slightly gibbous, solitary, 5–7 cm. broad; surface viscid when young but soon becoming dry, perfectly smooth and glabrous, resembling dressed kid, uniformly cream-colored, margin entire, concolorous; context pure-white, without characteristic taste or odor; lamellae broadly sinuate, crowded, ventricose, pale-chocolate-brown at maturity, entire and concolorous on the edges; spores ellipsoid, smooth, brown in mass, rather dark for the genus, pale-ferruginous under the microscope, 12–13 × 6–7 μ; stipe subequal, fleshy, longitudinally striate, glabrous, dull-cream-colored, white at the apex, 8–9 cm. long, 7–12 mm. thick; veil membranous, slight, remaining attached in fragments to the margin.

Type collected in old pastures near Palo Alto, California, March 11, 1902, *C. F. Baker 379* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Southern California.

44. **Hebeloma californicum** Murrill, sp. nov.

Pileus thick, fleshy, irregular, convex to subexpanded, broadly umbonate, gregarious, 7–9 cm. broad; surface glabrous, grayish-white to cream-colored, smooth on the disk, striate and becoming cracked toward the margin, which is entire to undulate or lobed, concolorous, ornamented with the remains of a slight arachnoid veil; context rather thin, white; lamellae sinuate, very broad, subcrowded, white, becoming yellowish and finally yellowish-brown; spores ellipsoid, smooth, pale-ferruginous, 10–12 × 6 μ; stipe equal or tapering upward, shining-white or grayish, solid, ornamented with coarse fibrils, often split or cracked, 5–10 cm. long, 1.5–3 cm. thick.

Type collected in clay soil near oak trees on Jasper Ridge, Stanford University, California, March 26, 1916, *James McMurphy 218* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Southern California.

45. **Hebeloma farinaceum** Murrill, sp. nov.

Pileus large, thick, convex to nearly plane, not umbonate, 8–10 cm. broad; surface glabrous, viscid, cream-colored to light-buff, margin entire, incurved, pallid; context white, with farinaceous odor and taste; lamellae sinuate, rather narrow, plane or arcuate, crowded, yellowish to subfulvous, entire and concolorous on the edges; spores ovoid, finely punctate, melleous under the microscope, fulvous in mass, 10–12 × 7 μ; stipe enlarged below, thick, fleshy, solid, white within and without, smooth, decorated with the remains of the fibrillose, evanescent veil, 6–8 cm. long, 2–3 cm. thick.

Type collected under oaks at Jasper Ridge, near Stanford University, California, January 11, 1912, *James McMurphy 126* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Southern California.

46. **Hebeloma Broadwayi** Murrill, Mycologia 4: 82. 1912.

Pileus fleshy, convex to expanded, 2–4 cm. broad; surface white, glabrous, subviscid, not striate; lamellae adnexed, crowded, rather narrow, white to ochraceous-fulvous, the edges white, crenulate; spores ochraceous-fulvous, ellipsoid, 12–14 × 7–8 μ; stipe cylindric, white, glabrous, hollow, 3–4 cm. long, 2–4 mm. thick.

TYPE LOCALITY: St. George's, Grenada.
HABITAT: Along roadsides in lowlands.
DISTRIBUTION: Known only from the type locality.

47. **Hebeloma cinchonense** Murrill, Mycologia 4: 82. 1912.

Pileus convex to expanded, umbonate, gregarious, 3–6 cm. broad, 1–2 cm. thick; surface pale-isabelline, rarely milky-white with a stramineous tinge, viscid, smooth, margin white, thin, straight, slightly cottony; context white, without characteristic taste; lamellae white, sinuate-adnexed, ventricose, broad; spores pip-shaped, smooth, with a single large, clear nucleus, pale-melleous under the microscope, 8 × 4 μ; stipe fleshy with a thin rind, enlarged below, abruptly bulbous at the base, glabrous, white or pale-yellowish, 3–6 cm. long, 7–10 mm. thick; veil slight, fibrillose, evanescent.

TYPE LOCALITY: Cinchona, Jamaica.
HABITAT: On the ground.
DISTRIBUTION: Cinchona, Jamaica.

48. **Hebeloma subtestaceum** Murrill, sp. nov.

Pileus small, broadly conic, not fully expanding, umbonate, solitary, 8 mm. broad, 5 mm. high; surface smooth, viscid, pale-testaceous on the umbo, the color somewhat more dilute over the rest of the surface, margin fibrillose from the remains of the evanescent veil, incurved, concolorous; lamellae adnate, broad, rather distant, white to subfulvous, entire and concolorous on the edges; spores ellipsoid, smooth, ochraceous, 5–6 × 3.5 μ; cystidia inverted-bottle-shaped, tapering to a blunt apex, hyaline, numerous, 50 × 10 μ; stipe larger below, stramineous, decorated with loose tufts of testaceous fibrils from the remains of the fibrillose, evanescent, testaceous veil, 3 cm. long, 2 mm. thick above, 4 mm. below.

Type collected in rich soil in woods at Morce's Gap, near Cinchona, Jamaica, December 29, 30, January 2, 1908–9, *W. A. & Edna L. Murrill 710* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

49. **Hebeloma subincarnatum** Murrill, Mycologia 4: 83. 1912.

Pileus conic to plane, gregarious, 2–2.5 cm. broad, 7 mm. thick; surface smooth, glabrous, incarnate-isabelline, margin straight; lamellae adnexed, nearly free, cremeous when young, soon becoming luteous, broad, ventricose; spores subellipsoid, one-sided, smooth, with one or two nuclei, very pale yellowish, 8 × 4 μ; stipe crooked, cylindric, equal, smooth, ochraceous, fibrillose when young, especially at the top, 3 cm. long, 2.5 cm. thick.

TYPE LOCALITY: Monkey Hill to Sir John Peak, Jamaica.
HABITAT: Among moss growing on clay soil.
DISTRIBUTION: Known only from the type locality.

COMPLETED VOLUME

9: i–iv, 1–542. (Agaricales:) Polyporaceae (pars), Boletaceae, Agaricaceae (pars). Complete in 7 parts.

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一九五五年叁月卅日

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VOLUME 10 PART 4

NORTH AMERICAN FLORA

(AGARICALES)

AGARICACEAE (pars)

AGARICEAE (pars)

WILLIAM ALPHONSO MURRILL

INOCYBE

CALVIN HENRY KAUFFMAN

PHOLIOTA

LEE ORAS OVERHOLTS

PUBLISHED BY

THE NEW YORK BOTANICAL GARDEN

NOVEMBER 29, 1924

ANNOUNCEMENT

NORTH AMERICAN FLORA is designed to present in one work descriptions of all plants growing, independent of cultivation, in North America, here taken to include Greenland, Central America, the Republic of Panama, and the West Indies, except Trinidad, Tobago, and Curaçao and other islands off the north coast of Venezuela, whose flora is essentially South American.

The work will be published in parts at irregular intervals, by the New York Botanical Garden, through the aid of the income of the David Lydig Fund bequeathed by Charles P. Daly.

It is planned to issue parts as rapidly as they can be prepared, the extent of the work making it possible to commence publication at any number of points. The completed work will form a series of volumes with the following sequence:

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Volumes 2 to 10. Fungi.

Volumes 11 to 13. Algae.

Volumes 14 and 15. Bryophyta.

Volume 16. Pteridophyta and Gymnospermae.

Volumes 17 to 19. Monocotyledones

Volumes 20 to 34. Dicotyledones.

The preparation of the work has been referred by the Scientific Directors of the Garden to a committee consisting of Dr. N. L. Britton, Dr. W. A. Murrill, and Dr. J. H. Barnhart.

Professor John M. Coulter, of the University of Chicago; Mr. Frederick V. Coville, of the United States Department of Agriculture; and Professor William Trelease, of the University of Illinois, have consented to act as an advisory committee.

Each author will be wholly responsible for his own contributions, being restricted only by the general style adopted for the work, which must vary somewhat in the treatment of diverse groups.

The subscription price is fixed at $1.50 for each part; it is expected that four or more parts will be required for each volume. A limited number of separate parts will be sold at $2.00 each. Address:

THE NEW YORK BOTANICAL GARDEN
BRONX PARK
NEW YORK CITY

50. **Hebeloma cubense** Murrill, sp. nov.

Pileus fleshy, convex, gregarious, 2 cm. broad; surface floccose with the remains of the veil, not striate, chestnut-brown; lamellae short-decurrent, crowded, broad, cinnamon, eroded on the edges; spores ellipsoid, regular, smooth, melleous under the microscope, 11–12 × 7–8 μ; stipe flexuous, tough, fibrous, cylindric, floccose-fibrillose, pale-brown, solid, whitened below, 4 cm. long, 3–4 mm. thick; veil white, floccose, appendiculate.

Type collected on soil in a garden at Herradura, Cuba, June 15, 1907, *F. S. Earle 560* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

DOUBTFUL AND EXCLUDED SPECIES

Hebeloma erysibodes (Mont.) Sacc. Syll. Fung. **5**: 795. 1887. (*Agaricus erysibodes* Mont. Syll. Crypt. 117. 1856.) Described from specimens collected among mosses on shaded ground at Columbus, Ohio. When examining the type of this species at Paris some years ago, I made a record that the specimens were well preserved and very much resembled one of our common wood-loving species of *Gymnopilus*.

Hebeloma firmum (Pers.) Gill. Champ. Fr. 523. 1876. (*Agaricus firmus* Pers. Ic. Descr. Fung. 14. 1798.) Reported from New York by Peck. There is one sheet of specimens at Albany bearing this name.

Hebeloma glutinosum (Lindgr.) Sacc. Syll. Fung. **5**: 793. 1887. (*Agaricus glutinosus* Lindgr. Bot. Not. **1845**: 199. 1845.) Reported from New York and New Jersey. The specimens so named by Peck at Albany do not at all correspond with Fries' figures and are perhaps referable to *Hebeloma commune*.

Hebeloma ischnostylum (Cooke) Sacc. Syll. Fung. **5**: 802. 1887. (*Agaricus ischnostylus* Cooke, Grevillea **12**: 98. 1894.) Reported from California by McClatchie and from Oregon by Lane. The species was described from England and probably does not occur in North America.

Hebeloma latericolor (Mont.) Sacc. Syll. Fung. **5**: 803. 1887. (*Agaricus latericolor* Mont. Syll. Crypt. 118. 1856.) Described from specimens collected about the roots of trees at Columbus, Ohio. The types at Paris are well preserved and resemble *Hypholoma perplexum* more than they do any species of *Hebeloma*.

Hebeloma longicaudum (Pers.) Quél. Champ. Jura Vosg. 334. 1873. (*Agaricus longicaudus* Pers. Syn. Fung. 332. 1801.) Reported from New York, Michigan, Mexico, and elsewhere, but I have not been able to connect these collections definitely with the European plant.

Hebeloma mussivum (Fries) Sacc. Syll. Fung. **5**: 292. 1887. (*Agaricus mussivus* Fries, Epicr. Myc. 178. 1838.) Reported from North America by a few collectors.

Hebeloma pyrrholepidum (Mont.) Sacc. Syll. Fung. **5**: 798. 1887. (*Agaricus pyrrholepis* Mont. Syll. Crypt. 116. 1856.) Described from specimens collected on grassy ground at Columbus, Ohio. My notes made in Paris are as follows: "Apparently *Inocybe* and much like *Lepiota granulosa*. Both the collections, nos. 116 and 158, are well preserved."

Hebeloma venifer (Berk. & Curt.) Sacc. Syll. Fung. **5**: 803. 1887. (*Agaricus venifer* Berk. & Curt. Proc. Am. Acad. **4**: 116. 1858.) Described from Arakamtchetchene Island, Bering Strait. The description is inadequate and I have not seen the type.

Hebeloma versipelle (Fries) Gill. Champ. Fr. 524. 1876. (*Agaricus versipellis* Fries, Epicr. Myc. 179. 1838.) Reported from New Jersey and elsewhere in the United States, but probably confused with *H. mesophaeum*, which is so closely related as to be scarcely distinguishable, especially in the dried state.

73. INOCYBE* (Fries) Quél. Champ. Jura Vosg. 151. 1872.

Agaricus § *Inocybe* Fries, Syst. Myc. 1: 254. 1821.
Astrosporina Schroet. Krypt.-Fl. Schles. 3^1: 576. 1889.
Agmocybe Earle, Bull. N. Y. Bot. Gard. 5: 439. 1909.
Inocibium Earle, Bull. N. Y. Bot. Gard. 5: 439. 1909.

Pileus fleshy, putrescent, subconic at first, then campanulate to subexpanded, innately silky, fibrillose or fibrillose-squamulose, dry or rarely viscid; cortina subsilky or fibrillose, more

* By CALVIN HENRY KAUFFMAN.

or less evanescent; lamellae adnate or adnexed; stipe central, fleshy-fibrous; volva none; spores some pale shade of brown, yellowish-brown, or fuscous, angular or even, the epispore tuberculate, spiny or smooth; cystidia present or absent; sterile cells on the specialized edges of the lamellae.

Type species, *Inocybe relicina* (Fries) Quél.

Spores angular, tuberculate, or spiny.
Spores spiny or nodulose, not truly angular; pileus some shade of brown.
Stipe with emarginate or subemarginate bulb; cystidia abundant, thick-walled.
Pileus 1–2 cm. broad. 1. *I. intricata.*
Pileus 2–5 cm. broad. 2. *I. asterospora.*
Stipe without emarginate bulb; cystidia scattered to few, thin-walled.
Pileus squarrose-scaly, fuscous-rufescent. 3. *I. calospora.*
Pileus appressed-scaly, cinnamon to ochraceous-tawny. 4. *I. subfulva.*
Spores angular or usually angular-tuberculate.
Cystidia present on sides of lamellae.
Pileus yellowish-tan, the umbo tawny; cystidia thick-walled. 6. *I. trechispora.*
Pileus deep-chrome, the umbo paler; cystidia thin-walled. 5. *I. Davisiana.*
Pileus brown, squarrose-scaly.
Spores $5–7 \times 4–5 \mu$; pileus dark-brown, becoming blackish on drying. 7. *I. stellatospora.*
Spores larger; pileus some shade of brown.
Growing on very decayed or mossy wood; lamellae rufescent; spores $9–12\ (–15) \times 7–9 \mu$. 8. *I. lanuginosa.*
Growing on the ground; lamellae brunnescent; spores $7–10 \times 6–8 \mu$. 9. *I. longicystis.*
Pileus brown, gray, or white, not regularly squarrose-scaly.
Pileus appressed-fibrillose-scaly or lacerate-scaly.
Spores unevenly angular, not nodulose; pileus brown; cystidia thin-walled. 10. *I. maritimoides.*
Spores angular-tuberculate.
Cystidia thin-walled.
Pileus tawny, minutely scaly; native of Jamaica. 11. *I. jamaicensis.*
Pileus wood-brown, subscaly to subrimose; native of northern United States. 12. *I. decipientoides.*
Cystidia thick-walled.
Growing on rotten wood; pileus pale-chestnut, fading, small. 13. *I. tubarioides.*
Growing on the ground.
Stipe with emarginate bulb, pallid then blackish; pileus grayish-brown. 14. *I. nigrescens.*
Stipe without emarginate bulb.
Pileus gray-fibrillose; stipe short. 15. *I. cicatricata.*
Pileus dark-brown; lamellae narrow. 9. *I. longicystis.*
Pileus definitely rimose or innate-silky.
Pileus rimose.
Pileus 3–6 (–8) cm. broad.
Pileus creamy-white; spores elongate. 16. *I. fibrosa.*
Pileus grayish to smoky-gray; spores subspheroid. 17. *I. californica.*
Pileus not more than 4 cm. broad.
Pileus small, 1–2.5 cm. broad; stipe bulbillate, the bulb more or less emarginate.
Pileus grayish or avellaneous.
Pileus covered with gray fibrils; spores $7–9\ (–10) \times 5–6 \mu$. 15. *I. cicatricata.*
Pileus subglabrous, the umbo naked; spores $6–7\ (–8) \times 5–6 \mu$. 18. *I. albodisca.*
Pileus not grayish.
Cystidia thin-walled; pileus chestnut-brown to raw-umber. 19. *I. umbrina.*
Cystidia thick-walled.
Pileus chestnut-brown. 20. *I. castanea.*
Pileus ochraceous-tawny to pinkish-tan. 21. *I. Earleana.*
Pileus medium, 2–4 (–5) cm. broad.
Pileus yellow-ochraceous to subalutaceous; stipe with emarginate bulb. 22. *I. praetervisa.*
Pileus some shade of brown or fuscous; cystidia thin-walled.
Stipe with emarginate-depressed bulb; pileus raw-umber-colored. 23. *I. nodulosa.*
Stipe with more or less rounded bulb.

Spores 7–11 × 5–6 μ; cystidia long-pedicellate. 25. *I. radiata.*
Spores 6–8 × 4–6 μ; cystidia short-pedicellate. 24. *I. prominens.*
Pileus innately silky-fibrillose or minutely subfloccose.
Growing on rotten wood; pileus pale-chestnut, fading. 13. *I. tubarioides.*
Growing on the ground.
Pileus medium to large, 2.5–5 (–6) cm. broad.
Spores 9–13 (–15) μ long.
Cystidia thin-walled; pileus wood-brown to tawny. 12. *I. decipientoides.*
Cystidia thick-walled; pileus ochraceous-cinnamon. 26. *I. decipiens.*
Spores not more than 10 μ long.
Plant entirely white or whitish. 27. *I. fallax.*
Plant some other color.
Spores 5–7 (–8) × 4–5 (–6) μ; pileus isabelline, rusty-hued on disk. 28. *I. abundans.*
Spores 7–9.5 × 6–7 μ; pileus whitish, streaked-fulvous or reddish. 29. *I. repanda.*
Pileus small, 0.5–2.5 cm. broad.
Pileus rarely more than 12 mm. broad.
Pileus pale-chestnut, lutescent. 30. *I. subexilis.*
Pileus gray, with a blackish-brown disk. 31. *I. nigrodisca.*
Pileus 1–3.5 cm. broad.
Pileus whitish or pale-cinereous.
Spores elongate, angular-subfusiform; pileus silvery-gray. 32. *I. alabamensis.*
Spores subspheroid to short-subrectangular.
Pileus often reddish-brown on the disk. 33. *I. infida.*
Pileus nearly unicolorous.
Stipe with emarginate bulb; lamellae very crowded. 34. *I. umbratica.*
Stipe equal; lamellae close. 35. *I. paludinella.*
Pileus some shade of brown, tawny, or ochraceous.
Cystidia thick-walled; pileus isabelline. 28. *I. abundans.*
Cystidia thin-walled; pileus clay-colored to subochraceous.
Stipe white; spores 8–10 (–12) × 5–6 (–7) μ. 36. *I. paludosella.*
Stipe yellowish-brownish; spores 6–8 (–9) × 4–6 μ. 37. *I. ventricosa.*
Cystidia lacking on sides of lamellae.
Pileus squarrose-scaly, umber-brown; spores 7–11 × 5–7 (–8) μ. 38. *I. leptophylla.*
Pileus appressed-fibrillose-scaly.
Pileus 3–6 cm. broad, brown; spores irregularly elongate, 8–10 × 4–6 μ. 39. *I. acystidiosa.*
Pileus 1–2.5 cm. broad, tawny or brown; spores subspheroid, 10–12 (–13) × 9–10 (–11) μ. 4. *I. subfulva.*
Spores smooth.
Cystidia present on sides of lamellae.
Pileus viscid, pale-clay-colored; plants stout. 40. *I. olpidiocystis.*
Pileus not viscid.
Pileus squarrose-scaly or appressed-fibrillose-scaly.
Pileus squarrose-scaly, 2–5 (–8) cm. broad, brown. 41. *I. Hystrix.*
Pileus appressed-fibrillose-scaly or lacerate-scaly.
Stipe more or less violaceous.
Pileus at first violaceous, soon becoming grayish-fuscous; cystidia with yellowish-tinted content. 42. *I. cincinnata.*
Pileus clay-colored to raw-sienna; cystidia hyaline. 43. *I. violaceoalbipes.*
Stipe not violaceous.
Pileus cinereous, 6–12 mm. broad; lamellae broad; cystidia thin-walled. 44. *I. griseoscabrosa.*
Pileus some other color.
Pileus whitish-lutescent, yellow, ochraceous to tawny.
Pileus 3–5 (–7) cm. broad, whitish to cream-colored.
Flesh rubescent where cut; odor sweetish, of fruits; spores 8–10.5 × 5–6 μ. 45. *I. pyriodora.*

Flesh unchanging; stipe subventricose-subradicate; spores 10–12 (–14) × 5–6 (–7) μ. — 46. *I. Bakeri.*
Pileus smaller, not more than 3.5 cm. broad.
Stem rubescent where cut; pileus yellowish; cystidia thin-walled. — 47. *I. rubellipes.*
Stem unchanging when cut.
Cystidia thick-walled.
Spores 8–11 (–12) × 4–5 (–6) μ; pileus straw-yellow. — 48. *I. hirtella.*
Spores 8–9.5 (–10) × 5–5.5 (–6) μ; pileus ochraceous-tawny. — 49. *I. ochraceomarginata.*
Cystidia thin-walled, scattered.
Cystidia short, 30–40 μ long; pileus 1–3 cm. broad. — 50. *I. cylindrocystis.*
Cystidia long, 60–90 μ; pileus 8–15 mm. broad. — 51. *I. squamosa.*
Pileus brown or umber, 1–3.5 cm. broad.
Cystidia thin-walled.
Spores elongate-subcylindric, 10–13 (–20) × 4–5.5 (–6) μ; lamellae broad. — 52. *I. lacera.*
Spores ellipsoid, 7–9 × 4–5 μ; lamellae narrow. — 53. *I. leptocystis.*
Cystidia thick-walled.
Plants small; pileus 5–15 mm. broad.
Stem hollow, tinged brown. — 54. *I. flocculosa.*
Stem solid, pallid. — 55. *I. minima.*
Plants larger; pileus 1–3.5 cm. broad.
Stipe turning blackish on aging; pileus yellowish then umber. — 56. *I. atripes.*
Stipe fibrillose-reticulate; spores 9–12 × 5–6 μ. — 57. *I. retipes.*
Pileus rimose or silky-fibrillose.
Stipe long and subventricose; pileus cream-colored to isabelline, 3–6 cm. broad. — 58. *I. longipes.*
Stipe more typical.
Pileus rimose, brown, fuscous or ochraceous-tawny; cystidia thick-walled.
Pileus 3–5 cm. broad, subrimose; lamellae narrow. — 59. *I. excoriata.*
Pileus 1–3 (–4) cm. broad.
Stipe with tinge of rufous.
Spores 8–10 × 5–5.5 μ; lamellae medium-broad; pileus becoming sublacerate-scaly. — 60. *I. subdestricta.*
Spores 6–7 × 5–6 μ; pileus distinctly rimose. — 61. *I. ovalispora.*
Stipe white or pallid, sometimes slightly lutescent.
Spores 9–11 (–13) × 4.5–6 μ; lamellae broad, attenuate-adnexed. — 62. *I. rimosa.*
Spores 7–9 (–10) × 4.5–5.5 μ.
Pileus clay-colored, brown to umber, subrimose. — 63. *I. pallidipes.*
Pileus fawn-colored to wood-brown; cystidia very abundant. — 64. *I. eutheloides.*
Pileus innately fibrillose-silky, or slightly flocculose, or minutely subscaly.
Pileus, stipe, or lamellae violaceous or lilac-colored.
Pileus grayish, minutely flocculose-fibrillose; lamellae pale-violet at first. — 65. *I. violaceifolia.*
Pileus and stem light-vinaceous-purple (R)*, appressed-silky. — 66. *I. lilacina.*
Pileus, stipe, and lamellae without violaceous color.
Pileus white or whitish, sometimes tinted lutescent or rubescent on aging.
Pileus, stipe and lamellae slowly staining to pale-reddish or flesh-colored; spores 8–10 (–12) × 5–6 μ. — 67. *I. Godeyi.*
Pileus not rubescent.
Spores 10–16 (–18) × 6–8 μ; pileus 3–7 (–10) cm. broad. — 68. *I. serotina.*
Spores not more than 10 μ long.
Growing on decayed wood; pileus 4–8 mm. broad. — 69. *I. comatella.*
Growing on the ground.
Pileus 3–6 cm. broad.
Umbo of pileus grayish-green to olivaceous; odor unique. — 70. *I. corydalina.*

* "(R)" after a color-name refers to Robert Ridgway's "Color standards and color nomenclature" (1912).

Umbo not greenish.
Cystidia thick-walled, abundant; pileus floccose at first; spores 8–10 × 5–6 μ. — 71. *I. sindonia.*
Cystidia thin-walled, scattered; pileus chalky-white; spores 8–9 × 4.5–5.5 μ. — 72. *I. insinuata.*
Pileus 1.5–2.5 cm. broad.
Stipe 2–3 mm. thick; pileus glossy-silky; cortina evanescent. — 73. *I. geophylla.*
Stipe 4–6 mm. thick; pileus subsilky; cortina profuse. — 74. *I. sambucella.*
Pileus colored, not mainly white.
Pileus some shade of brown, fuscous, or fawn-colored.
Pileus small, up to 15 mm. broad, tawny-brown. — 55. *I. minima.*
Pileus 1–3.5 cm. broad.
Stipe white; pileus brown to umber. — 63. *I. pallidipes.*
Stipe same color as pileus or a paler shade.
Stipe very slender, 1–2 mm. thick.
Cystidia thick-walled, abundant; pileus and stipe fuscous-brown; spores 10–13 × 5–6 μ. — 75. *I. scabella.*
Cystidia thin-walled, scattered; pileus and stipe pale-rufous; spores 9–11 (–13) × 5–6.5 μ. — 76. *I. rufidula.*
Stipe 2–4 mm. thick.
Cystidia slender, 70–95 μ long; pileus tawny-olive to cinnamon. — 77. *I. pallidobrunnea.*
Cystidia shorter, averaging 50–60 μ long.
Cystidia thick-walled, abundant; pileus streaked with agglutinate fibrils. — 78. *I. agglutinata.*
Cystidia thin-walled, scattered; pileus virgate, the umbo blackish-brown. — 79. *I. virgata.*
Pileus yellowish, ochraceous, or pale-clay-colored.
Pileus 3–7 (–10) cm. broad, sordid-ochraceous-tan; bulb of stem enlarged with intergrown sand. — 68. *I. serotina.*
Pileus 2–3.5 cm. broad.
Cystidia thin-walled, scattered; odor farinaceous; pileus yellow-ochre. — 80. *I. connexa.*
Cystidia thick-walled, abundant.
Pileus ochraceous, fleshy; stipe rather stout and firm; cystidia often with yellowish content, fusoid. — 81. *I. subochracea.*
Pileus clay-colored, thinner; cystidia hyaline, ventricose. — 82. *I. submuricellata.*
Cystidia lacking on sides of lamellae.
Pileus squarrose-scaly, fibrillose-appressed-scaly, or tomentose-fibrillose.
Pileus at length squarrose-scaly, color some shade of brown, tawny to pale-ochraceous.
Spores elongate-suboblong, narrow, 9–13 × 3.5–5 μ; pileus ochraceous-tawny to Dresden-brown (R). — 83. *I. marmoripes.*
Spores subreniform.
Stipe 4–8 cm. long; pileus dark-brown to bister.
Base of stipe greenish-blue; pileus 1–4 cm. broad. — 84. *I. calamistrata.*
Base of stipe concolorous; pileus 1.5–2.5 cm. broad. — 85. *I. mutata.*
Stipe 2–4 cm. long.
Spores 8–10 × 5–6 μ, not very variable; pileus tawny to ochraceous-buff. — 86. *I. Caesariata.*
Spores longer and more variable in size.
Spores 8–10 (–12) × 5–5.5 μ; pileus tawny, yellowish-brown, the color persisting on drying. — 87. *I. Lorillardiana.*
Spores 9–12 × 5–5.5 (–6) μ; pileus honey-yellow to grayish-ochraceous, fading on drying. — 88. *I. unicolor.*

Pileus tomentose-fibrillose, or becoming appressed-scaly or lacerate.
Flesh becoming reddish or purplish.
Pileus 1.5–2.5 cm. broad, at first dull-ochraceous, rubescent; spores 12–15 (–17) × 6–7 (–8) μ. — 89. *I. subrubescens.*
Pileus 3–6 (–8) cm. broad, at first with innate brown-purplish to reddish-chestnut fibrils, or subscaly; spores 10–12 × 6–7 μ. — 90. *I. jurana.*
Flesh not changing to reddish or purplish.
Pileus minute, 3–4 mm. broad, dark-reddish-brown. — 91. *I. tenerrima.*
Pileus much larger.
Stipe subperonate by a fibrillose-tomentose to subfloccose-scaly covering.
Spores 8–10 × 5–6 μ, not very variable in size; pileus at first densely tomentose-fibrillose. — 86. *I. Caesariata.*
Spores varying, longer.
Spores 8–10 (–12) × 5–5.5 μ; pileus tawny to yellowish-brown, the color persisting on drying. — 87. *I. Lorillardiana.*
Spores 9–12 × 5–5.5 (–6) μ; pileus honey-yellow to grayish-ochraceous, fading on drying. — 88. *I. unicolor.*
Stipe not subperonate.
Spores 5–6 × 3–4 μ; pileus ferruginous, covered with dense-hairy fasicles. — 92. *I. anomala.*
Spores larger.
Lamellae broadly adnate-subdecurrent; stipe hollow; pileus thinly tomentose-subscaly. — 93. *I. subdecurrens.*
Lamellae emarginate-adnate; stipe solid; pileus minutely tomentose. — 94. *I. subtomentosa.*
Pileus rimose or innately silky.
Pileus at length rimose.
Pileus some shade of yellowish to tawny-ochraceous.
Stipe with an emarginate bulb, lutescent; pileus straw-yellow, becoming subochraceous. — 95. *I. Cookei.*
Stipe without emarginate bulb.
Pileus covered with white, hoary-silky fibrils, pale-ochraceous to pale-tawny. — 96. *I. lanatodisca.*
Pileus without hoary-silky covering.
Spores subreniform.
Spores 9–12 × 5–6 μ; pileus dull-yellow-ochre to rich-yellow-fuscous, very rimose; lamellae narrow. — 97. *I. fastigiata.*
Spores 7–9 (–10) × 4.5–5.5 μ.
Pileus with prominent, often subacute umbo, pale-yellow; lamellae narrow. — 98. *I. rimosoides.*
Pileus obtuse or gibbous, tawny-yellowish; lamellae rather broad. — 99. *I. Curreyi.*
Spores elongate-ellipsoid, 9–13 (–16) × 5.5–6 (–8) μ; pileus pale-yellowish; lamellae narrow. — 100. *I. sororia.*
Pileus umber to brown; spores subreniform.
Spores 7–9 (–10) × 4.5–5.5 μ; pileus tawny-olive to brown; lamellae narrow. — 101. *I. fastigiella.*
Spores 10–12 (–13) × 5.5–6.5 (–7) μ; pileus dark-umber-brown; lamellae crowded. — 102. *I. umbrinella.*
Pileus innately fibrillose-silky or subflocculose.
Spores subreniform.
Pileus ochraceous-buff, diffracted on the disk, 2–5 cm. broad. — 103. *I. squamosodisca.*
Pileus brownish to dark-brown.
Pileus 3–7 cm. broad; disk minutely floccose-scaly, firm. — 104. *I. brunnescens.*
Pileus 1.5–3.5 cm. broad, subfibrillose, naked on the umbo, soon soft and fragile. — 105. *I. glaber.*
Spores ellipsoid, not subreniform.
Spores short-ellipsoid, 7–8.5 (–9) × 5–6 μ; lamellae adnate-emarginate; pileus ochraceous-tawny. — 94. *I. subtomentosa.*
Spores variable in size, 8–10 (–12) × 5–5.5 (–6) μ; lamellae broadly adnate-subdecurrent; pileus tawny-olive to cinnamon-buff. — 93. *I. subdecurrens.*

1. **Inocybe intricata** Peck, Bull. N. Y. State Mus. 131: 36. 1909.

Pileus thin, conic to convex, expanded, umbonate, 1–2 cm. broad; surface dry, fibrillose, radiately rimose, pale-brown or tawny-brown, shining, the umbo generally darker; cortina evanescent; context white; lamellae adnate or sinuate-adnate, close, whitish then umber; stipe fragile, flexuous, pruinose, stuffed to hollow, bulbillate, the bulblet subemarginate, 3–5

cm. long, 1–2 mm. thick; spores broadly elliptic in outline, scarcely angular, densely and coarsely covered with obtuse nodules, 10–12.5 × 7–8 (–9) μ; cystidia thick-walled, ovoid-lanceolate above a short pedicel, subhyaline, abundant on the sides and the edges of the lamellae, 55–70 × 15–25 (–30) μ.

TYPE LOCALITY: Stow, Massachusetts.
HABITAT: On humus in frondose woods.
DISTRIBUTION: Known only from the type locality.

2. Inocybe asterospora Quél. Bull. Soc. Bot. Fr. 26: 50. 1879.

Clypeus subrimosus P. Karst. Medd. Soc. Faun. Fl. Fenn. 16: 38. 1889.
Inocybe subrimosa Sacc. Syll. Fung. 9: 100. 1891.

Pileus rather thin, conic-campanulate to convex-umbonate, 2–5 cm. broad; surface dry, fibrillose, becoming more or less scaly, distinctly rimose, chestnut-brown to cinnamon-rufous (R); context pallid; lamellae narrowly adnate then emarginate, broad, ventricose, close, at length olivaceous-cinnamon or grayish-brown, the edges fimbriate; stipe equal above the depressed-emarginate, rather prominent bulb, innately striatulate, mealy-pubescent, solid, rufescent, 4–6 cm. long, 2.5–6 mm. thick; spores spheroid to broad-elliptic in outline, covered with blunt, subcylindric nodules, 9–11 (–12) × 8–10 μ, or 9–11 μ in diameter; cystidia stout, subovoid to ventricose-sublanceolate or subfusoid, obtuse, hyaline at the apex, sessile or with a short pedicel, thick-walled, thicker upward, abundant on the sides and the edges of the lamellae, 50–75 × 15–25 μ.

TYPE LOCALITY: France.
HABITAT: On the ground in frondose and mixed woods.
DISTRIBUTION: New England to Virginia, and westward to Wisconsin and Missouri; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 385* (*430*); Pat. Tab. Fung. f. *546;* Ricken, Blätterp. Deutschl. *pl. 29, f. 1;* Rolland, Atl. Champ. *pl. 67, f. 148.*

3. Inocybe calospora Quél.; Bres. Fungi Trid. 1: 19. 1882.

Inocybe rigidipes Peck, Ann. Rep. N. Y. State Mus. 51: 289. 1898.

Pileus thin, conic-campanulate then expanded, umbonate, 1–3 cm. broad; surface dry, covered, except on the umbo, with loose or squarrose-fibrillose scales, sometimes squamose or rimose, fuscous-rufescent, the umbo darker; margin fibrillose and paler; lamellae adnexed to almost free, rather narrow, subventricose, pallid then pale-fuscous-cinnamon, the edges white-fimbriate; stipe firm, rigid-elastic, at length flexuous, subequal, stuffed to hollow, pale-brown, rufescent, pruinose throughout, bulbillate, 3–6 cm. long, 1.5–2.5 mm. thick; spores spheric or subspheroid, 9–12 μ in diameter (incl. aculeae), covered with cylindric, blunt aculeae; cystidia subcylindric to subventricose, thin-walled, few or scattered on the sides, subfusoid and with the wall slightly thickened, hyaline, numerous on the edges of the lamellae, 40–55 × 8–12 μ; sterile cells cyst-like, on the edges of the lamellae.

TYPE LOCALITY: Austria.
HABITAT: Grassy places in low woods.
DISTRIBUTION: Eastern North America, southward to Florida and westward to Missouri; also in Europe.
ILLUSTRATIONS: Bres. Fungi Trid. *pl. 21;* Gill. Champ. Fr. *pl. 349* (*361*); C. H. Kauffman, Agar. Mich. *pl. 91.*

4. Inocybe subfulva Peck, Ann. Rep. N. Y. State Mus. 41: 66. 1888.

Inocybe echinocarpa Ellis & Ev. Jour. Myc. 5: 26. 1889.

Pileus thin, broadly subconic, soon convex, subumbonate to umbonate, 1–2.5 cm. broad; surface dry, with dense-appressed-fibrillose scales, cinnamon-brown to ochraceous-tawny; context white; lamellae adnexed, rounded behind, subventricose, close, whitish at first, then tawny cinnamon, the edges entire; stipe equal, firm, solid, tough, pruinose at the apex, slightly fibrillose below, concolorous or paler, 2–5 cm. long, 2–3 mm. thick; spores subglobose or short-elliptic, not angular, covered equally with spines which are subacute, broader at the base, sometimes slightly stouter and more obtuse, 10–12 (–13) × 9–10 (–11) μ; genuine cystidia none;

sterile cells cyst-like, clavate to subventricose, obtuse, short, widely scattered on the hymenium' 36 × 10–12 μ; basidia 28–30 × 8–10 μ.

TYPE LOCALITY: Selkirk, New York.
HABITAT: In the grass or on the bare ground along roadsides.
DISTRIBUTION: New England and New York to South Carolina and Mississippi.

5. Inocybe Davisiana C. H. Kauffman, sp. nov.

Pileus thin, subconic then convex-expanded, broadly umbonate, 0.5–3 cm. broad; surface viscid to subviscid, silky when dry, when very young deep Brussels-brown (R), then deep-chrome (R), the umbo at length pale-ochraceous or maize-yellow; margin at length slightly subrimose; context whitish or tinged yellowish; lamellae sinuate-adnexed, moderately broad toward the front, close, whitish then buffy-brown (R); stipe equal above the rounded bulblet, solid, innately fibrillose-silky, pruinose at the apex, Mars-yellow (R), flavescent, white-mycelioid at the base, 3–6 cm. long, 2–3.5 mm. thick; spores irregularly angular-tuberculate, covered with nodules which are rather distinct and usually obtuse, subhexagonal or subspheroid, 7–9 × 4–7 μ; cystidia thin-walled, scattered to few, subventricose-subcylindric, tapering to a pedicel, usually rounded above, rarely abruptly narrow-necked, hyaline, 45–65 × 15–20 μ; sterile cells cyst-like, broadly clavate, on the edges of the lamellae.

Type collected in moist places under pine trees and sphagnum at Stow, Massachusetts, June 13, 1918, *Simon Davis* (herb. Univ. Mich.).
DISTRIBUTION: Known only from the type locality.

6. Inocybe trechispora (Berk.) P. Karst. Bidr. Finl. Nat. Folk 32: 465. 1879.

Agaricus (*Hebeloma*) *trechisporus* Berk. Outl. Brit. Fungol. 156. 1860.

Pileus thin, subconic to campanulate-convex, then expanded-plane, umbonate, 2–2.5 cm. broad; surface viscid, silky when dry, the umbo tawny, elsewhere paler, pale-stramineous to tan or tinged wood-brown (R); lamellae sinuate-adnexed, of medium width, close, white then grayish-brownish, the edges white-fimbriate; stipe tapering slightly upward above the emarginate bulb, pruinose above, solid, innately striatulate, white, sublutescent, 2–5 cm. long, 2–4 mm. thick; spores angular-tuberculate, covered with distinct, subelliptic-subrectangular nodules, 6–8 (–9) × 4–6 (–7) μ; cystidia short, obese, thick-walled, short-flask-shaped above the short pedicel, hyaline, abundant on the edges, moderately abundant on the sides of the lamellae, 45–50 × 15–24 μ.

TYPE LOCALITY: England.
HABITAT: On low, swampy ground.
DISTRIBUTION: New England to North Carolina, and westward to Michigan, Tennessee, and Alabama; also in Europe.
ILLUSTRATIONS: Berk. Outl. Brit. Fungol. *pl. 8, f. 6;* Cooke, Brit. Fungi *pl. 403* (*443*) *A.*

7. Inocybe stellatospora (Peck) Massee, Ann. Bot. 18: 469. 1904.

Agaricus (*Hebeloma*) *stellatosporus* Peck, Ann. Rep. N. Y. State Mus. 26: 57. 1874.
Hebeloma stellastosporum Sacc. Syll. Fung. 5: 798. 1887.

Pileus thin, convex to nearly plane, obtuse, dry, 2–5 cm. broad; surface dry, densely covered with squarrose scales, dark-brown, becoming smoky-umber when dried; lamellae adnate then emarginate, close, broad, pallid at first, then brown, drying to smoky-cinereous; stipe equal, firm, solid, squamose to squarrose-scaly, subglabrescent, fibrillose at the apex, colored like the pileus, 4–6 cm. long, 2.5 mm. thick; spores minute, usually irregularly tuberculate-angular, subglobose, or subrectangular, covered with indistinct nodules, 5–7 × 4–5 μ; cystidia subventricose, sometimes capitate, rather stout, scattered on the sides of the lamellae, 65–75 × 15–20 μ; sterile cells cyst-like, on the edges of the lamellae.

TYPE LOCALITY: Croghan, New York.
HABITAT: On the ground in mixed woods.
DISTRIBUTION: New York to Virginia.

8. Inocybe lanuginosa (Bull.) Sacc. Syll. Fung. 5: 765. 1887.

Agaricus lanuginosus Bull. Herb. Champ. Fr. *pl. 370.* 1787.
Agaricus sabuletorum Berk & Curt. Grevillea 19. 103. 1891.
Inocybe sabuletorum Sacc. Syll. Fung. 11: 51. 1895.

Pileus slightly fleshy, hemispheric or campanulate, then expanded and umbonate, 2–3 cm. broad; surface dry, densely flocculose-squamose or squarrose-scaly, especially on the disk, umber-colored to tawny; cortina grayish-white, evanescent; context pallid; lamellae adnexed. seceding, close, rounded behind, pallid-clay-colored then bright-cinnamon, the edges white-flocculose; stipe equal, stuffed then hollow, fibrillose-subscaly, subconcolorous, paler and naked at the apex, 2–4 cm. long, 2.5–3 mm. thick; spores elliptic-subglobose, prominently covered with blunt nodules, sometimes subglobose and stellate, 9–12 (–15) × 7–9 μ (incl. aculeae); cystidia broadly subcylindric, some subventricose, on a short pedicel, thin-walled, hyaline, scattered to few, rarely more numerous on the sides, rather abundant on the edges of the lamellae, 50–65 × 15–25 μ; sterile cells numerous on the edges of the lamellae.

TYPE LOCALITY: Austria.
HABITAT: On mossy, very rotten wood.
DISTRIBUTION: New York, Washington, Oregon, and Idaho; also in Europe.
ILLUSTRATIONS: Bres. Fungi Trid. *pl. 117;* Cooke, Brit. Fungi *pl. 425* (*409*) *B;* Pat. Tab. Fung *550;* Ricken, Blätterp. Deutschl. *pl. 29, f. 7.*

9. Inocybe longicystis Atk. Am. Jour. Bot. 5: 213. 1918.

Pileus obtusely subconic then campanulate to convex, obsoletely umbonate, rather thin, 1–2.5 cm. broad; surface dry, snuff-brown (R) to bister, tomentose-fibrillose then lacerate-scaly or appressed-scaly, often squarrose-scaly on the disk; context whitish, brown-tinged with age; lamellae adnexed, mostly rather narrow, ventricose, subdistant, grayish-pallid then snuff-brown, the edges white-fimbriate; stipe equal, solid, with fibrillose covering, then somewhat scaly below, subglabrescent, pallid above, concolorous below, pallid within, becoming brown on exposure, 4–5 cm. long, 3–5 mm. thick; spores tuberculate-angular, subrectangular to subspheroid, covered with distinct nodules, 7–9 (–10) × 5–7 (–8) μ; cystidia subcylindric-subventricose, sometimes much elongated on the edges of the lamellae, thin-walled, some slightly thick-walled, hyaline, scattered on the sides, abundant on the edges of the lamellae, 50–70 × 15–20 μ; sterile cells present on the edges of the lamellae.

TYPE LOCALITY: Seventh Lake, Adirondack Mountains, New York.
HABITAT: On leaf-mold, mosses, and soil in mixed woods.
DISTRIBUTION: Massachusetts, New York, and Michigan.

10. Inocybe maritimoides (Peck) Sacc. Syll. Fung. 5: 771. 1877.

Agaricus (*Inocybe*) *maritimoides* Peck, Ann. Rep. N. Y. State Mus. 38: 87. 1885.

Pileus rather thin, subconic then convex, obtuse, 1–2.5 cm. broad; surface dry, covered with dense-appressed-fibrillose scales, which are sometimes erect on the disk, dark-brown, becoming wood-brown (R) when dried; margin fibrillose; lamellae adnexed, rounded behind, close, ventricose, whitish becoming brownish-ochraceous; stipe equal, solid, fibrillose, paler than the pileus, 2–3 cm. long, 3–4 mm. thick; spores subrectangular in outline, sometimes subquadrate, not tuberculate, 6–8 (–9) × 4–5 (–6) μ, pale under the microscope; cystidia thin-walled, hyaline, subcylindric above a short pedicel, rounded above and sometimes with the wall slightly thickened, scattered on the sides and the edges of the lamellae, 50–60 × 12–15 μ.

TYPE LOCALITY: Karner, New York.
HABITAT: On sandy soil in woods.
DISTRIBUTION: Known only from the type locality.

11. Inocybe jamaicensis Murrill, Mycologia 4: 82. 1912.

Pileus convex, gregarious, 2–3 cm. broad; surface minutely appressed-fibrillose-scaly, tawny, the umbo prominent, especially when young; margin fading to isabelline with age; lamellae adnate, distant, dirty-white; stipe equal or slightly larger above, avellaneous to brownish below, nearly white above, 3–4 cm. long, 3–5 mm. thick; spores angular-tuberculate, irregularly subrectangular-ellipsoid, covered with short, obtuse nodules, 8–11 (–12) × 5–7 (–8) μ; cystidia thin-walled, inflated-obovoid, acute or apiculate above, tapering to a slender pedicel,

medium-abundant to scattered on the sides, more on the edges of the lamellae, 50–60 × 25–28 μ; sterile cells on the edges of the lamellae.

TYPE LOCALITY: Cinchona, Jamaica.
HABITAT: On clayey ground.
DISTRIBUTION: Known only from the type locality.

12. **Inocybe decipientoides** Peck, Bull Torrey Club **34**: 100. 1907.

Inocybe Astoriana Murrill, Mycologia **3**: 104. 1911.
Inocybe ochraceoscabra Atk. Am. Jour. Bot. 5: 214. 1918.

Pileus rather thin, subconic to campanulate-convex, then expanded and umbonate, 1–3 cm. broad; surface dry, innately fibrillose, often scaly on the disk, sometimes entirely appressed-scaly, wood-brown (R) to tawny (R), the umbo darker; margin white-cortinate, frequently rimose with age, the cortina white, evanescent; context whitish; lamellae adnexed, sinuate, moderately broad, subdistant, whitish then brown, the edges white-fimbriate; stipe equal, subbulbous, stuffed to hollow, fragile, fibrillose, pruinose above, pallid becoming brownish below, 2–4 cm. long, 2–4 mm. thick; spores tuberculate-angular, usually varying ovoid-cuneate or subrectangular, covered with prominent but scattered nodules (frequently a large nodule terminates the narrow end of a spore) variable in size in different collections, 9–11 (–15) × 5–7 (–8) μ; cystidia thin-walled, hyaline, ventricose-elliptic to broadly fusiform above a long, slender pedicel, scattered to subabundant on the sides, abundant on the edges of the lamellae, 50–60 × 15–25 μ; sterile cells abundant on the edges of the lamellae.

TYPE LOCALITY: Boston, Massachusetts.
HABITAT: On lawns, along roadsides, and in swamps.
DISTRIBUTION: Massachusetts to Maryland; and in Washington and Oregon.
ILLUSTRATIONS: Mycologia 1: *pl. 213, f. 4* (as *Inocybe infida*); Mycologia 3: *pl. 40, f. 15.*

13. **Inocybe tubarioides** Atk. Am. Jour. Bot. **5**: 217. 1918.

Pileus thin, convex-expanded, 6–12 mm. broad; surface dry, covered with a whitish villosity, becoming minutely fibrillose-scaly as seen under a lens, pale-chestnut, hygrophanous, fading; lamellae adnate, subdecurrent by a tooth, subventricose, subtriangular, not very broad, close; stipe equal, slightly incrassate near the base, solid, loosely covered with scattered white fibrils, pale-chestnut, fading, white-mycelioid at the base, 2–5 cm. long, 2–3 mm. thick; spores angular-tuberculate, covered with minute nodules varying usually subquadrate or subrhomboid, rarely elongate, 5–9 μ in diameter, pale in color; cystidia thin-walled, subclavate-subcylindric to subelliptic, rounded at the apex, tapering to a short pedicel, hyaline, scattered on the sides, more numerous on the edges of the lamellae, 60–75 × 12–16 μ.

TYPE LOCALITY: Ithaca, New York.
HABITAT: On very rotten wood.
DISTRIBUTION: Known only from the type locality.

14. **Inocybe nigrescens** Atk. Am. Jour. Bot. **5**: 214. 1918.

Pileus rather thin, campanulate to convex, then expanded, umbonate, 1.5–3 cm.; surface dry, fibrillose, becoming appressed-fibrillose-scaly, grayish-brown; margin at times faintly rimose; lamellae adnexed, narrow to medium-wide, close, avellaneous to pale-clay-colored; stipe equal above the abrupt, emarginate bulb, pruinose at the apex, slightly villose below, pallid becoming fuscous to bone-brown (R) when dried, 3–4 cm. long, 3–4 mm. thick; spores subglobose to subrectangular in outline, with prominent nodules, 9–10 (–11) × 7–9 μ or 8–10 μ in diameter; cystidia thick-walled, subhyaline or tinted brownish, sessile or with a short pedicel, ventricose-subcylindric, abundant at and near the edges of the lamellae, less numerous elsewhere.

TYPE LOCALITY: Ithaca, New York.
HABITAT: On the ground in woods.
DISTRIBUTION: New York.

15. **Inocybe cicatricata** Ellis & Ev. Jour. Myc. **5**: 25. 1889.

Pileus subconic to conic-campanulate, then convex-expanded, not umbonate, 1–2.5 cm. broad; surface dry, densely gray-fibrillose, becoming rimose with age, glabrous on the disk; context white, compact on the disk; margin thin; lamellae narrowly adnate by a decurrent

tooth, sinuate, rather narrow, pallid then dingy-cinnamon-brown; stipe short, solid, equal above the subbulbous base, pruinose-pubescent throughout, glabrescent, whitish then darker, 1–3 cm. long, 2–4 mm. thick; spores irregularly angular to subrectangular, obscurely tuberculate or covered with tubercles scattered at the angles, 7–9 (–10) × 5–6 (–7) μ; cystidia short, thick-walled, ventricose, elliptic above a short pedicel, hyaline, moderately abundant on the sides and the edges of the lamellae, 45–55 × 15–18 μ.

TYPE LOCALITY: Newfield, New Jersey.
HABITAT: On gravelly soil in fields.
DISTRIBUTION: New York, New Jersey, and Mississippi.
EXSICCATI: Ellis & Ev. N. Am. Fungi *1901*.

16. **Inocybe fibrosa** (Sow.) Bres. Fungi Trid. 1: 51. 1884.

Agaricus fibrosus Sow. Engl. Fungi *pl. 414.* 1814.
Agaricus repandus Fries, Syst. Myc. 1: 255. 1821. Not *A. repandus* Bull. 1788.

Pileus fleshy, obtusely campanulate then expanded and broadly umbonate, 4–10 cm. broad; surface dry, silky-fibrillose, at length rimose, creamy-white or tinged straw-colored, sometimes ochraceous-stained; margin lobed, split or recurved; context white, unchanged, the odor somewhat penetrating; lamellae free, rounded behind, broader toward the front, close to crowded, whitish then ashy-cinnamon, the edges white-fimbriate; stipe fibrous, subequal, striatulate to subsulcate, glabrescent, pruinose at the apex, incrassate towards the base, solid, white then sordid, 4–10 cm. long, 6–20 mm. thick; spores angular-oblong, with obscure, scattered tubercles, 9–12 (–13) × 5–7 μ; cystidia broadly subcylindric to subfusoid, moderately abundant on the sides and the edges of the lamellae, 60–90 × 10–15 μ.

TYPE LOCALITY: Austria.
HABITAT: In coniferous and mixed woods.
DISTRIBUTION: New York and Michigan; also Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 454* (*424*); C. H. Kauffman, Agar. Mich. *pl. 94;* Ricken, Blätterp. Deutschl. *pl. 29. f. 8;* Sow. Engl. Fungi *pl. 414.*

17. **Inocybe californica** C. H. Kauffman, sp. nov.

Pileus fleshy on the center, ovoid then campanulate or expanded, umbonate, 2.5–6 cm. broad; surface dry, innately fibrillose, shining, rimose, smoky-cinereous; lamellae sinuate-adnexed, broad, subventricose, close, pale-grayish then cinereous-umber; stipe equal above the abrupt emarginate bulb, solid, glabrous, whitish tinged cinereous, 3–6 cm. long, 3–6 mm. thick; spores polygonal-angular, with obscure tubercles at the angles, globose in outline, 7–10 (–11) μ; cystidia long subcylindric-fusoid, thick-walled, hyaline, on a short pedicel, abundant on the sides and the edges of the lamellae, 65–100 × 12–15 (–18) μ.

Type collected on the ground, campus of the University of California, Berkeley, California, February, 1916, *H. H. Hu 1094* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: California and Oregon.

18. **Inocybe albodisca** Peck, Ann. Rep. N. Y. State Mus. 51: 290. 1898.

Pileus slightly fleshy, subconic, then campanulate-umbonate or expanded, 1.5–3.5 cm. broad; surface dry, innately silky, the umbo sublubricous, obtuse, at first pale-lilac-incarnate then grayish-drab; margin at length rimose; context whitish, unchangeable; lamellae rather narrow, sinuate-adnexed, close, whitish at first then cinereous-brown, the edges minutely white-fimbriate; stipe equal above the subemarginate bulb, solid, glabrous, even, pruinose at the apex, tinged with the same color as the pileus, fading, 3–5 cm. long, 3–5 mm. thick; spores sinuate-angular, subrectangular to subglobose in outline, obscurely subnodulose, 6–7 (–8) × 5–6 μ; cystidia thick-walled, hyaline, subfusoid-ventricose, abundant on the sides and the edges of the lamellae, 45–60 × 15–18 μ; sterile cells short, clavate, mixed with the cystidia on the edges of the lamellae.

TYPE LOCALITY: North Elba, New York.
HABITAT: On the ground in hemlock or mixed woods.
DISTRIBUTION: New England to Missouri and Washington.

19. **Inocybe umbrina** Bres. Fungi Trid. 1: 50. 1884.

Inocybe castaneoides Peck, Bull. N. Y. State Mus. 167: 43. 1913.

Pileus rather thin, subconic to convex-campanulate, then plane and umbonate, rarely slightly subviscid, 1–3.5 cm. broad; surface fibrillose, at length very long-rimose, sometimes verruculose at the disk, chestnut-brown to raw-umber (R) or Argus-brown (R); context lurid; lamellae sinuate-adnate, rather narrow, close to crowded, pallid-brownish tinged mustard-yellow (R) then cinnamon-brown; stipe equal, slightly bulbous at the base, stuffed then hollow, cortinate-fibrillose, subconcolorous, furfuraceous above, 2–5 (–6) cm. long, 2–5 mm. thick; spores usually angular-tuberculate, subglobose, or subrectangular, with inconspicuous nodules, 6–8 × 4–6 μ; cystidia of thin-walled type, with slightly thickened wall, subventricose-subcylindric above a pedicel, hyaline, scattered to subabundant on the sides, numerous on the edges of the lamellae, 40–55 × 10–15 (–20) μ.

TYPE LOCALITY: Austria.
HABITAT: In frondose or coniferous woods.
DISTRIBUTION: New England to North Carolina and westward to Michigan; also in Europe.
ILLUSTRATIONS: Bres. Fungi Trid. *pl. 55.*

20. **Inocybe castanea** Peck, Bull. N. Y. State Mus. 75: 16. 1904.

Pileus rather thin, subconic then campanulate-convex, umbonate; surface dry, innately fibrillose, becoming subrimose, chestnut-brown, 10–16 mm. broad; margin at first incurved; lamellae adnate, thin, narrow, close, whitish then ferruginous-brown; stipe equal, stuffed to hollow, glabrous, subpruinose at the apex, subconcolorous or paler, white-mycelioid at the base, 2–4 cm. long, 2 mm. thick; spores angular-subnodulose, subrectangular, subtriangular to subglobose in outline, scarcely longer than wide, 5–7 (–8) × 4–6 μ; cystidia thick-walled, hyaline, subcylindric-sublanceolate, obtuse, subsessile, rather abundant on the sides and the edges of the lamellae, 55–65 × 12–18 μ.

TYPE LOCALITY: Lake Pleasant, New York.
HABITAT: On the ground under conifers.
DISTRIBUTION: New York to North Carolina.
ILLUSTRATION: Bull. N. Y. State Mus. 75: *pl. O, f. 1–8.*

21. **Inocybe Earleana** C. H. Kauffman, sp. nov.

Pileus thin, subconic to campanulate, then expanded-umbonate, 1–3 cm. broad; surface dry, innately fibrillose, at length subrimose to rimose, pale-ochraceous-tawny to light-pinkish-tan; lamellae adnexed, sinuate, medium-broad, subventricose, whitish then pale-incarnate-cinnamon, the edges white-fimbriate; stipe rather slender, innately silky, equal above the depressed-emarginate, sometimes subvolvate bulb, white or pallid, 3–5 cm. long, 1–3.5 mm. thick; spores angular-tuberculate, small, subrectangular to subglobose, with nodules, 7–8 × 4–6 μ; cystidia stout, thick-walled, ovoid-sublanceolate, obtuse at the apex, with a short pedicel, hyaline, numerous on the sides and the edges of the lamellae, 50–80 × 16–22 (–24) μ.

Type collected on the ground in mixed woods, Auburn, Alabama, May 18, 1902, *F. S. Earle* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Alabama and Tennessee.

22. **Inocybe praetervisa** Quél.; Bres. Fungi Trid. 1: 35. 1883.

Pileus thin, subconic to conic-campanulate, then expanded, umbonate or gibbous, 2–6 cm. broad; surface lubricous or dry, innately fibrillose, glabrous at the disk, soon very long and finely rimose, ochraceous-alutaceous to pale-yellow-ocher (R); margin often lobed or split with age; context whitish, unchanged; lamellae attenuate-adnexed, medium-broad to narrow, crowded, whitish at first then cinereous-cinnamon; stipe equal above the emarginate-bulbous base, terete, solid, glabrous or subfibrillose, pruinose at the apex, whitish then warm-buff (R) or stramineous, 3–7 cm. long, 3–7 mm. thick; spores angular-nodulose, subhexagonal, subtriangular, variable in shape, mostly elongate, with obtuse and rather prominent nodules, 9–12 (–13) × 5–7 (–9) μ; cystidia fusoid-ventricose above a short pedicel, thick-walled, hyaline, scattered to subabundant on the sides, numerous on the edges of the lamellae, 60–85 × 15–25 μ.

TYPE LOCALITY: Austria.
HABITAT: On the ground in coniferous regions.
DISTRIBUTION: Massachusetts, New York, Wyoming, and Washington; also in Europe.
ILLUSTRATIONS: Bres. Fungi. Trid. *pl. 38;* Pat. Tab. Fung. *f. 115.*

23. **Inocybe nodulosa** C. H. Kauffman, sp. nov.

Pileus rather thin, conic to campanulate, then expanded-umbonate, 2–5 cm. broad; surface dry, with appressed fibrils, the umbo glabrous, at length subrimose to rimose, raw-umber (R) on the center; margin paler; context whitish, firm; lamellae adnexed, medium-broad, close, whitish to avellaneous, finally cinnamon-brown; stipe equal above the emarginate-depressed bulb, stuffed, subfibrillose, whitish and pruinose at the apex, yellowish-brown or umber downward to a white-mycelioid bulb, 4–7 cm. long, 2–5 mm. thick; spores angular-nodulose, subquadrate, subtriangular or sometimes subrectangular to subglobose, with coarse, obtuse nodules, often one fourth of the diameter of the spore, 7–9.5 μ in diameter; cystidia thin-walled, subcylindric to subventricose above a short pedicel, rounded above, hyaline, scattered to few on the sides, more numerous on the edges of the lamellae, 50–65 $\times$ 12–18 μ.

Type collected on the ground in coniferous woods, Camp Kanosa, Adirondack Mountains, New York, August 25–31, 1915, *W. A. Murrill* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Maine and Canada to New York.

24. **Inocybe prominens** C. H. Kauffman, sp. nov.

Inocybe umboninota Peck, N. Y. State Mus. 139: 58, in part. 1910.

Pileus fleshy, conic to conic-campanulate, often subexpanded, usually prominently umbonate, the umbo acute at first, 2–5 cm. broad; surface dry, innately fibrillose, glabrescent, subrimose to rimose, chestnut-brown (R) to Argus-brown (R), the umbo darker and glabrous; context compact, whitish, unchanged; lamellae adnexed, rather broad, ventricose, at length sinuate, close, white at first, then pale-cinnamon-brown; stipe equal above the bulbous base, the bulb ovoid to subemarginate, persistently stuffed, innately fibrillose-striatulate, whitish when young, becoming brown, white-pruinose upward, white-mycelioid at the base, 4–8 cm. long, 3–8 mm. thick; spores angular-tuberculate, not very distinct, usually subrectangular or irregularly subglobose, 6–8 $\times$ 4–6 μ; cystidia thin-walled, subcylindric, rounded at the apex, on a slender pedicel, hyaline, scattered on the sides, abundant on the edges of the lamellae, 55–75 $\times$ 12–18 (–22) μ.

Type collected in Ulster County, New York, *Peck* (N. Y. State Herb.)

HABITAT: On the ground in woods.

DISTRIBUTION: Massachusetts, New York, Washington, and Oregon.

25. **Inocybe radiata** Peck, Bull. Torrey Club 22: 488. 1895.

Pileus somewhat fleshy, subconic-campanulate or convex, very umbonate, the umbo obtuse, umber-colored or darker, 2–5 cm. broad; surface dry, covered with appressed brown fibrils, sometimes excoriate, often radiately wrinkled when dried, becoming subrimose to rimose, Brussels-brown (R) to tawny; context whitish, unchanged; lamellae adnate, becoming emarginate, close, broad, whitish then ochraceous-cinnamon to subferruginous, the edges white-fimbriate; stipe equal, stuffed, appressed, silky-fibrillose, subbulbillate and white-mycelioid at the base, concolorous but paler, 3–6 cm. long, 2–4 mm. thick; spores usually angular-tuberculate, subrectangular, or subtriangular, generally narrowed at one end, with distinct nodules, scattered and obtuse, variable in size, 7–9 (–11) $\times$ 5–6 μ; cystidia thin-walled, ventricose or ovoid-lanceolate above a long slender pedicel, subacute at the apex, hyaline, scattered to few on the sides, varying to rounded-ovoid and numerous on the edges of the lamellae, 50–65 (–70) $\times$ 12–18 (–21) μ.

TYPE LOCALITY: Massachusetts.

HABITAT: On the ground in frondose woods.

DISTRIBUTION: Massachusetts and New York to North Carolina and Michigan.

26. **Inocybe decipiens** Bres. Fungi Trid. 2: 13. 1892.

Pileus slightly fleshy, convex then expanded-umbonate, 2–5 cm. broad; surface silky-flocculose, the umbo glabrous or becoming diffracted-scaly, dry, ochraceous-cinnamon; context whitish, the odor earthy; lamellae sinuate-adnexed, rounded behind, close, broad, ventricose, whitish at first then cinereous, at length lurid-cinnamon, the edges obsoletely fimbriate; stipe stuffed, glabrous, subpruinose at the apex, slightly striate, emarginate-bulbous, whitish or pallid, 4–5 cm. long, 6–9 mm. thick; spores yellowish, angular, nontuberculate or with ob-

solete tubercles, sinuate-elliptic, 10–13 (–15) × 5–7 (–8) μ; cystidia stout, thick-walled upward, with a short pedicel, moderately abundant on the sides, more on the edges of the lamellae, 60–70 × 18–25 μ; sterile cells on the edges of the lamellae.

TYPE LOCALITY: Austria.
HABITAT: On the ground in thickets and the edges of fields.
DISTRIBUTION: New York; also in Europe.
ILLUSTRATION: Bres. Fungi Trid. *pl. 118.*

27. **Inocybe fallax** Peck, Bull. N. Y. State Mus. 75: 17. 1904.

Pileus rather fleshy, campanulate or convex, umbonate, 2–5 cm. broad; surface dry, innately fibrillose, sometimes minutely and obscurely scaly, whitish or buff-white, subshining; margin decurved or incurved, often splitting; context white; lamellae slightly adnexed, rounded behind, close, pallid at first, rusty-brownish with age; stipe rather long, equal, hollow, flexuous, minutely pruinose, whitish, 4–6 cm. long, 3–6 (–8) mm. thick; spores usually angular-tuberculate or subspheroid to subrectangular, 6–8 × 4–6 μ; cystidia thick-walled, short and obese, hyaline, ventricose, abundant on the sides and the edges of the lamellae, 40–50 × 15–18 (–20) μ.

TYPE LOCALITY: Lake Pleasant, New York.
HABITAT: In mixed woods.
DISTRIBUTION: New York and Michigan; Washington and Oregon.
ILLUSTRATION: Bull. N. Y. State Mus. 75: *pl. O, f. 20–25.*

28. **Inocybe abundans** Murrill, Mycologia 3: 104. 1911.

Pileus subconic, then campanulate-convex, obtuse, sometimes umbonate, 1–3.5 cm. broad; surface dry, silky-fibrillose, more or less subrimose, isabelline, rusty-hued on the disk, virgate; context mild, the odor rather strong-fungous; lamellae free or adnexed, pallid to ferruginous; stipe equal, pallid above, subconcolorous below, up to 5 cm. long, 2–3 mm. thick; cortina white, scanty, evanescent; spores angular-tuberculate, with rather indistinct nodules subhexagonal to subspheroid, 5–7 (–8) × 4–5 (–6) μ; cystidia thick-walled, ventricose, with a tapering neck, obtuse at the apex, with a short pedicel, hyaline or yellowish-tinged, abundant on the sides and the edges of the lamellae, 45–50 × 15–18 μ.

TYPE LOCALITY: New York City.
HABITAT: Moist places in woods.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Mycologia 3: *pl. 40, f. 14.*

29. **Inocybe repanda** (Bull.) Quél. Fl. Myc. Fr. 101. 1888.

Agaricus repandus Bull. Herb. Fr. *pl. 423.* 1788.
Inocybe desquamans Peck, Bull. Torrey Club 33: 216. 1906.

Pileus slightly fleshy to subconic-campanulate, then expanded and broadly umbonate, 3–5 cm. broad; surface dry, covered with appressed orange-fulvous fibrils on the whitish foundation, the umbo fulvous and glabrous; margin at length subrimose or split, sometimes scaly-cracked; context white, subrufescent; lamellae adnexed or almost free, broad, subventricose, close to crowded, at first white, rufescent, then clay-colored to cinnamon-brown, the edges white-fimbriate; stipe equal above the abrupt or rounded bulb, stuffed, even, striatulate at the apex, slightly silky-fibrillose, the fibrils toward the base fulvous-tinged, white-pruinose at the apex, 3–6 cm. long, 5–6 mm. thick; spores irregularly angular-tuberculate, with inconspicuous nodules, 7–9.5 (–10) × 5–7 μ; cystidia thick-walled, fusiform, subhyaline, moderately abundant on the sides and the edges of the lamellae, 60–75 × 12–18 (–20) μ.

TYPE LOCALITY: Austria.
HABITAT: On the ground in frondose woods.
DISTRIBUTION: New York to Michigan and Missouri; also in Europe.
ILLUSTRATIONS: Bull. Herb. Fr. *pl. 423;* Bres. Fungi Trid. *pl. 119;* C. H. Kauffman, Agar. Mich. *pl. 95;* Rolland, Atl. Champ. *pl. 67, f. 149.*

30. **Inocybe subexilis** (Peck) Sacc. Syll. Fung. 5: 785. 1887.

Agaricus (Inocybe) subexilis Peck, Ann. Rep. N. Y. State Mus. 38: 87. 1885.

Pileus thin, convex or subcampanulate, then expanded, umbonate, 5–10 mm. broad; surface dry, at first pale-chestnut-colored, then yellowish or subochraceous; margin fibrillose; lamellae rounded behind, narrow, rather close, subventricose, whitish becoming dull-ochra-

ceous; stipe equal, solid, flexuous, minutely pruinose, finely striate under a lens, pinkish then yellowish, 1.5–2.5 cm. long, 1 mm. thick; spores angular-tuberculate, irregularly subglobose, 6–7.5 × 5–6 μ; cystidia abundant, medium thick-walled, hyaline, subventricose below a cylindric neck, subobtuse, 45–60 × 12–15 μ.

TYPE LOCALITY: Caroga, New York.
HABITAT: On damp, mossy ground in woods.
DISTRIBUTION: New England and New York.

31. **Inocybe nigrodisca** Peck, Ann. Rep. N. Y. State Mus. 41: 67. 1888.

Pileus thin, at first convex, then nearly plane or somewhat centrally depressed, umbonate, 8–16 mm. broad; surface dry, minutely fibrillose, blackish-brown; margin grayish when moist, cinereous when dry; lamellae free or slightly adnexed, rounded behind, close, at first grayish then ferruginous-brown, sometimes tinged with yellow; stipe slender, firm, solid, flexuous, minutely villose-pruinose, reddish-brown, 2–3.5 cm. long, 1 mm. thick; spores angular-tuberculate, with indistinct nodules, irregularly subglobose; 6–8 μ in diameter; cystidia thick-walled, hyaline, subsessile, slender, narrowly lanceolate-subcylindric, abundant on the sides and the edges of the lamellae, 50–60 × 8–12 μ.

TYPE LOCALITY: Kasoag, Oswego County, New York.
HABITAT: Under ferns in low ground.
DISTRIBUTION: Known only from the type locality.

32. **Inocybe alabamensis** C. H. Kauffman, sp. nov.

Pileus thin, subconic, campanulate-expanded, slightly umbonate, 1–2 cm. broad; surface dry, innately silky, even, light-silvery-gray; lamellae adnexed-sinuate, rather broad, close, whitish tinged yellowish, then rusty-brown; stipe equal, slender, white-pruinose throughout, yellowish, slightly enlarged at the base by adhering sand, 1–2 cm. long, 1.5–3 mm. thick; spores usually angular-tuberculate, subfusiform, or subrectangular, sparsely nodulose, 8–10 (–12) × 3.5–5 μ; cystidia thick-walled, short, ventricose above a short pedicel, hyaline, abundant on the sides and the edges of the lamellae, 45–55 × 15–18 μ.

Type collected on sandy soil, Auburn, Alabama, November 12, 1899, *F. S. Earle* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

33. **Inocybe infida** (Peck) Earle, Torreya 3: 170. 1903.

Agaricus (Hebeloma) infidus Peck, Ann. Rep. N. Y. State Mus. 27: 95. 1875.
Hebeloma infidum Sacc. Syll. Fung. 5: 796. 1887.

Pileus thin, firm, subconic-campanulate, then expanded, subumbonate, 1.5–2.5 cm. broad; surface dry, silky or slightly squarrulose, whitish, or often reddish-brown on the disk, drying brown; margin at length often split; lamellae adnexed, close, narrow, pallid, becoming pale-cinnamon-brown; stipe equal above the slightly enlarged or somewhat rounded-bulbous base, stuffed to hollow, furfuraceous at the apex, white, drying brownish, 4–5 cm. long, 2–4 mm. thick; spores usually angular-tuberculate, subspheroid, or subrectangular, with rather distinct nodules, 7–9 (–10) × 6–8 μ; cystidia thick-walled, very abundant, short, hyaline, on a short pedicel, 45–50 × 12–18 (–20) μ.

TYPE LOCALITY: Adirondack Mountains, New York.
HABITAT: On mossy ground in woods.
DISTRIBUTION: New England to Maryland, and westward to Michigan.

34. **Inocybe umbratica** Quél. Assoc. Fr. Av. Sci. Compte Rendu 12: 500. 1884.

Inocybe commixta Bres. Fungi Trid. 1: 53. 1884.

Pileus fleshy, conic-campanulate, then expanded-umbonate, 1–3.5 cm. broad; surface dry, innately silky-fibrillose, pure-white to whitish-cinereous, dingy-white when dried; margin often split; context white, the odor earthy-nauseous, the taste mild; lamellae free, very crowded, strict, white then grayish-cinnamon, the edges minutely fimbriate; stipe equal above the abrupt turbinate-bulbous or emarginate-bulbous base, solid, delicately pruinose, furfuraceous at the

apex, white, dingy-white when dried, 3–4 cm. long, 3–6 mm. thick; spores angular-tuberculate, subspheroid to subrectangular in outline, with rather distinct nodules, 6–9 (–10) × 4–6 (–7) μ; cystidia abundant, thick-walled, fusoid-ventricose, 40–65 × 12–16 (–18) μ.

TYPE LOCALITY: France.
HABITAT: In coniferous or mixed woods.
DISTRIBUTION: Massachusetts, Tennessee, and Oregon; also in Europe.
ILLUSTRATIONS: Assoc. Fr. Av. Sci. Compte Rendu 12: *pl. 6, f. 7.* Bres. Fungi Trid. *pl. 58, f. 2.*

35. **Inocybe paludinella** (Peck) Sacc. Syll. Fung. 5: 788. 1887.

Agaricus (Inocybe) paludinellus Peck, Ann. Rep. N. Y. State Mus. 31: 34. 1879.

Pileus thin, slightly convex, soon plane, umbonate, 0.5–2 cm. broad; surface dry, subfibrillose, whitish or pallid; lamellae adnate, narrow, close, whitish becoming subferruginous; stipe slender, equal, concolorous, white-mycelioid at the base, 2–5 cm. long, 2 mm. thick; spores angular-tuberculate, with minute and indistinct nodules, usually irregularly subrectangular to subglobose, 7–9 × 4–5.5 μ; cystidia thick-walled, subhyaline, subventricose-sublanceolate, somewhat obtuse at the apex, with a short pedicel, very numerous on the sides and the edges of the lamellae, 50–60 × 10–15 μ.

TYPE LOCALITY: Sandlake, New York.
HABITAT: On low ground and in wet places under bushes.
DISTRIBUTION: New York.

36. **Inocybe paludosella** Atk. Am. Jour. Bot. 5: 215. 1918.

Pileus thin, subconic, campanulate to expanded, prominently umbonate, the umbo subacute, 1–3.5 cm. broad; surface dry, innately fibrillose, subvirgate, clay-colored (R); margin at length slightly rimose; lamellae adnexed, moderately broad, subventricose, white then ochraceous-tawny; stipe slender, equal, hollow, glabrous, pruinose at the apex, with a minute round bulb at the base, white, 4–5 cm. long, 1.5–2.5 mm. thick; spores usually angular-subnodulose, elongate-subhexagonal, or subrhomboid, with nodules scattered and indistinct, 8–10 (–12) × 5–6 (–7) μ; cystidia thin-walled, subcylindric, slightly ventricose, rounded at the apex, subsessile, hyaline, scattered on the sides, more numerous on the edges of the lamellae, 50–70 × 15–20 μ.

TYPE LOCALITY: Seventh Lake, Adirondack Mountains, New York.
HABITAT: On leafmold in mixed woods.
DISTRIBUTION: Known only from the type locality.

37. **Inocybe ventricosa** Atk. Am. Jour. Bot. 5: 217. 1918.

Pileus convex-expanded, somewhat gibbous, not umbonate, 1–2.5 cm. broad; surface dry, innately silky, bright-clay-colored to ochraceous; margin at length split; lamellae adnexed, elliptic, pale-clay-colored; stipe equal or slightly tapering upward, fibrous-striate, concolorous, covered with minute white villosity, pruinose at the apex, with a few fibrils toward the base, 3–4 cm. long, 2.3 mm. thick; spores usually angular-tuberculate, small, subrectangular, subspheroid, very irregular from dense but indistinct nodules, 6–8 (–9) × 4–6 μ; cystidia thin-walled, or wall slightly thickened, clavate-ventricose, obtuse-rounded above, tapering to a short pedicel, hyaline, those on the edges more thick-walled and shorter, scattered on the sides, more numerous on the edges of the lamellae, 40–55 × 12–18 (–20) μ.

TYPE LOCALITY: Ithaca, New York.
HABITAT: On low ground in mixed woods.
DISTRIBUTION: Known only from the type locality.

38. **Inocybe leptophylla** Atk. Am. Jour. Bot. 5: 212. 1918.

Pileus rather thin, convex or obtusely campanulate, then expanded; surface dry, densely covered with numerous, minute, squarrose scales, walnut-brown to burnt-umber, darker on the disk, 1–4 cm. broad; margin with appressed fibrils; context pallid; lamellae adnexed, rather broad, ventricose, pallid, then cinnamon or tawny-olive, the edges white-flocculose; stipe equal, solid, floccose-fibrillose to tomentose-scaly, concolorous to fuliginous below, paler above, 2–4 cm. long, 2–5 mm. thick; spores subellipsoid to subglobose, often twice as long as wide, varying in shape, with scattered to closely-arranged obtuse nodules, which are wider at the

base, 7–11 × 5–7 (–8) μ; cystidia none; sterile cells clavate, numerous on the edges of the lamellae, 30–40 × 10–12 μ.

TYPE LOCALITY: Ithaca, New York.
HABITAT: On debris, wood-mould, and rotten wood, often among moss.
DISTRIBUTION: Canada and New England to Michigan.

39. **Inocybe acystidiosa** C. H. Kauffman, sp. nov.

Pileus subfleshy, obtusely subconic-convex, then plane and subumbonate, 3–6 cm. broad; margin decurved; surface dry, fibrillose-scaly, sordid-brown, the scales darker; context white; lamellae sinuate-adnexed, close, rather broad in front, whitish then pale-brown, the edges white-fimbriate; stipe equal above a subbulbous base, subglabrous, fibrous-fleshy, brown, paler at the apex, white-mycelioid at the base, 2–3 cm. long, 4–8 mm. thick; spores usually angular-tuberculate, elongate-subrectangular, subtriangular, with distinct nodules, 8–10 (–11) × 4–6 μ; cystidia none; sterile cells clavate, on the edges of the lamellae.

Type collected on the ground under pines, Campus, Leland Stanford Jr. University, Palo Alto, California, April 3, 1903, *C. F. Baker 1872* (herb. N. Y. Bot. Gard.).

40. **Inocybe olpidiocystis** Atk. Am. Jour. Bot. 5: 214. 1918.

Pileus fleshy, convex, obtuse, at length depressed, 4–6 cm. broad; surface viscid when moist, glabrous, pale-clay-colored, darker on the disk; margin repand or split, context white; lamellae broadly emarginate, ventricose, 8–10 mm. wide, grayish then subferruginous; stipe equal, fibrillose-striate, white, sometimes darker below, 4–6.5 cm. long, 10–12.5 mm. thick; spores subellipsoid, subacute at one end, inequilateral, 9–12 (–13) × 5–6 (–8) μ; cystidia varying thick-walled to thin-walled, sessile, broadly subcylindric to subventricose-ovoid, obtuse to rounded at the apex, hyaline, scattered on the sides, more on the edges of the lamellae, 40–60 × 15–30 μ.

TYPE LOCALITY: Ithaca, New York.
HABITAT: On grassy ground and lawns.
DISTRIBUTION: Known only from the type locality.

41. **Inocybe Hystrix** (Fries) P. Karst. Bidr. Finl. Nat. Folk 32: 453. 1879.

Agaricus Hystrix Fries, Epicr. Myc. 171. 1838.

Pileus ovoid to convex, subexpanded, obtuse or subumbonate, 2–5 (–8) cm. broad; surface dry, clothed with dense, pointed or squarrose scales, varying wood-brown, seal-brown, and umber; margin sometimes appressed-fibrillose; context white; lamellae adnate, not broad, close, pallid at first, then brown, the edges white-flocculose; stipe equal, scarcely enlarged at the base, peronate to near the apex by concolorous, squarrose scales, sometimes merely fibrillose-floccose-scaly, paler or subincarnate beneath the scales, glabrous and pallid at the apex, 4–8 cm. long, 3–6 mm. thick; spores elliptic-ovoid, smooth, inequilateral, 9–13 (–15) × 5–5.5 (–7) μ; cystidia thick-walled, varying sublanceolate-fusoid to ovoid-lanceolate above a slender pedicel, subobtuse at the apex, with a long tapering neck, 60–90 × 12–16 (–20) μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground in coniferous regions.
DISTRIBUTION: New England and Canada, westward to Michigan; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 424 (406)*; Fries, Ic. Hymen. *pl. 106, f. 1.*

42. **Inocybe cincinnata** (Fries) P. Karst. Bidr. Finl. Nat. Folk 32: 456. 1879.

Agaricus (Inocybe) cincinnatus Fries, Syst. Myc. 1: 256. 1821.
Agaricus (Inocybe) alienellus Britz. Derm. Südb. 4. 1882.
Inocybe alienella Sacc. Syll. Fungi 5: 764. 1887.

Pileus slightly fleshy, convex to plane, obtuse or umbonate, 1–3.5 cm. broad; surface dry, floccose-scaly or appressed-fibrillose-scaly, sometimes squarrose on the disk; scales often small, tinged violaceous when young and fresh, changing to mouse-gray, fuscous or dark-brown; margin appressed-fibrillose; context whitish; lamellae adnexed to sinuate-adnate, crowded, ventricose, fuscous-violaceous, then cinnamon-fuscous, the edges fimbriate; stipe rather slender, equal above the slightly bulbous base, solid, more or less fibrillose to fibrillose-sub-

scaly, at first violaceous at the apex, fading, elsewhere subfuscous, at first violaceous within towards the apex, 3–4 cm. long, 2–3 mm. thick; spores elliptic-subovoid, acute at one end, smooth, 8–10 (–12) × 5–5.5 (–6) μ; cystidia thick-walled, often with yellowish content, subcylindric-sublanceolate, somewhat ventricose, on a slender pedicel, abundant on the sides and the edges of the lamellae, 70–95 × 12–15 (–18) μ.

TYPE LOCALITY: Sweden.
HABITAT: Under coniferous trees in groves or woods.
DISTRIBUTION: New York, Ohio, Washington, and Oregon; also in Europe.
ILLUSTRATIONS: Pat. Tab. Fung. *f. 541;* Quél. Champ. Jura Vosg. 1: *pl. 2, f. 4;* Ricken, Blätterp. Deutschl. *pl. 30, f. 5.*

43. **Inocybe violaceoalbipes** Atk. Am. Jour. Bot. 5: 217. 1918.

Pileus subconic, then convex to expanded, subgibbous or umbonate, 1–2.5 cm. broad; surface dry, prominently appressed- or diffracted-scaly, rimose-cracked around or on the umbo; scales sometimes subsquarrose, clay-colored (R) to raw-sienna (R); lamellae adnexed, sinuate, ventricose, isabelline at length rusty-fulvous, the edges white-fimbriate; stipe equal above the bulb which is surrounded by a thin, discrete volva-like saucer, solid, pruinose at the apex, striatulate, flexuous, subfibrillose, violaceous at the apex, white downward, 3–5 cm. long, 3–5 mm. thick; spores elliptic-ovoid, subinequilateral, smooth, 8–10 × 5–6 μ; cystidia of thin-walled type as to distribution and shape, but with thickened wall on all parts, ventricose-subcylindric to ventricose-fusoid, or clavate on the edges, tapering to a pedicel or subsessile, scattered on the sides, numerous on the edges of the lamellae, 50–65 × 10–16 (–20) μ; basidia 25–27 × 5–7 μ.

TYPE LOCALITY: Ithaca, New York.
HABITAT: In coniferous or mixed woods.
DISTRIBUTION: Known only from the type locality.

44. **Inocybe griseoscabrosa** (Peck) Earle, Torreya 3: 169. 1903.

Agaricus (Hebeloma) griseoscabrosus Peck, Ann. Rep. N. Y. State Mus. 26: 57. 1874.
Hebeloma griseoscabrosum Sacc. Syll. Fung. 5: 796. 1887.

Pileus hemispheric or convex, sometimes papillate, dry, 6–12 mm. broad; surface appressed-fibrillose-scaly, cinereous; margin whitish when young; lamellae broad, close, whitish then ochraceous-brown; stipe equal or slightly tapering downward, solid, firm, fibrillose or slightly scaly, whitish or tinged cinereous, 3–5 cm. long, 2–3 mm. thick; spores ellipsoid, smooth, inequilateral, pale under the microscope, 10–12 (–13) × 5–6 (–8) μ; cystidia thin-walled, subcylindric and obtuse to subovoid above a short tapering pedicel, hyaline, scattered to few on the sides, more on the edges of the lamellae, 55–70 × 15–20 μ.

TYPE LOCALITY: Bethlehem, New York.
HABITAT: On the ground in woods.
DISTRIBUTION: New York and Oregon.

45. **Inocybe pyriodora** (Pers.) Bres. Fungi Trid. 1: 48. 1884.

Agaricus pyriodorus Pers. Syn. Fung. 300. 1801.

Pileus fleshy, conic-campanulate, expanded and broadly umbonate, 3–5 (–7) cm. broad; surface dry, at first silky-tomentulose, at length appressed-fibrillose-scaly, whitish when young, soon dingy-ochraceous or pale-fuscous-clay-colored; margin sometimes irregularly lobed or split; context whitish, slowly brick-red where cut, thick on the disk, the odor spicy; lamellae sinuate-adnexed, medium-broad, close, whitish then sordid-cinnamon, with age diluted with a rufous tinge, the edges white-flocculose; stipe subequal, at first cortinate, solid to stuffed, hollowed by grubs, subfibrillose, furfuraceous at the apex, white at first becoming light-reddish with age, 4–7 cm. long, 4–10 mm. thick; spores elliptic-subovoid, smooth, inequilateral, 7.5–10 × 5–6 μ; cystidia thick-walled, moderately abundant, fusoid to ovoid above a short pedicel or sessile, hyaline, flattened in one plane, 45–60 × 10–20 μ.

TYPE LOCALITY: Austria.
HABITAT: In coniferous and frondose woods.
DISTRIBUTION: New England to Michigan, Missouri, and California; also in Europe.
ILLUSTRATIONS: Bres. Fungi Trid. *pl. 52;* Gill. Champ. Fr. *pl. 346 (369);* Pat. Tab. Fung. *f. 528.*

46. **Inocybe Bakeri** Peck, Bull. Torrey Club 36: 332. 1909.

Pileus fleshy, broadly convex, at length subplane, 2.5–5.5 cm. broad; surface densely fibrillose, dry, cream-colored or subalutaceous; context white; lamellae adnexed, crowded, subventricose, pallid-brown then rusty-brown; stipe subequal to subventricose, solid, glabrous, white-pruinose at the apex, at length striate, subradicate, white, 5–8 cm. long, 5–15 mm. thick; spores 11–12 (–14) × 5–6 (–7) μ, ellipsoid, smooth; cystidia 40–50 μ long.

TYPE LOCALITY: Claremont, California.
HABITAT: Under oak trees.
DISTRIBUTION: Known only from the type locality.

47. **Inocybe rubellipes** Atk. Am. Jour. Bot. 5: 215. 1918.

Pileus thin, campanulate, then obtusely umbonate, 1–1.5 cm. broad; surface dry, with minute, darker, appressed-fibrillose scales, sometimes areolate-rimose on the center, raw-sienna or wax-yellow; margin slightly rimose; context whitish, the odor strong, like meal or cornsilk; lamellae adnexed, narrow, crowded, grayish-avellaneous, changing to dull-reddish when bruised, the edges flocculose; stipe equal, solid, pruinose, at the apex straight or flexuous, concolorous but paler than pileus, white-mycelioid at the base, white within, turning reddish when bruised, 3–5.5 cm. long, 2–4 mm. thick; spores elongate-ovoid, narrower toward one end, inequilateral, 8–10 (–12) × 5–6 (–7) μ; cystidia thin-walled, sometimes slightly thickened above, cylindric to subventricose-subcylindric above a slender pedicel, hyaline, abundant on the sides and the edges of the lamellae, 55–80 × 10–18 μ.

TYPE LOCALITY: Ithaca, New York.
HABITAT: On the ground in mixed woods.
DISTRIBUTION: Known only from the type locality.

48. **Inocybe hirtella** Bres. Fungi Trid. 1: 52. 1881.

Pileus thin, conic-campanulate, then expanded-umbonate, 1–2.5 cm. broad; surface dry, yellowish, covered densely with small, hairy, darker-yellow scales, glabrous on the center; margin soon split; context whitish; lamellae adnate, close, rather broad, subventricose, whitish at first then fuscescent, the edges white-fimbriate; stipe equal or attenuate below, bulbillose, pruinose at the apex, subglabrous elsewhere, white, slightly straw-colored with age, white within, 2–4 cm. long, 2–4 mm. thick; spores elongate-elliptic-oblong, subinequilateral, smooth, 8–11 (–12) × 4–5 (–6) μ; cystidia thick-walled, lanceolate-subfusoid above a long pedicel, hyaline, abundant on the sides and the edges of the lamellae, 50–75 × 10–15 μ.

TYPE LOCALITY: Austria.
HABITAT: On moist ground under shrubs.
DISTRIBUTION: New York; also in Europe.
ILLUSTRATION: Bres. Fungi Trid. *pl. 58, f. 1.*

49. **Inocybe ochraceomarginata** C. H. Kauffman, sp. nov.

Pileus thin, campanulate, then convex-expanded, umbonate, 2–3.5 cm. broad; surface dry, appressed-fibrillose-scaly, fibrillose toward the margin, amber-brown (R) when young, at length ochraceous-tawny (R) to ochraceous-buff (R) toward the margin; context white; lamellae adnate, sinuate, moderately broad, subventricose, close to subdistant, whitish then dark-brown, the edges white-fimbriate; stipe equal, subbulbous, usually geniculate below, stuffed, fibrillose, subglabrescent, pruinose at the apex, pale-ochraceous-buff, 4–7 cm. long, 2–6 mm. thick; spores ellipsoid-ovoid, smooth, 8–9.5 (–10) × 5–5.5 (–6) μ; cystidia thick-walled, subcylindric-sublanceolate above a long slender pedicel, often with yellowish content, moderately abundant on the sides and the edges of the lamellae, 60–90 × 12–15 (–18) μ.

Type collected at the roadside under bushes, Stow, Massachusetts, June 27–July 19, 1918, *Simon Davis* (herb. Univ. of Mich.).
DISTRIBUTION: Massachusetts.

50. **Inocybe cylindrocystis** Atk. Am. Jour. Bot. 5: 211. 1918.

Pileus convex to expanded-subumbonate, fragile, 1–3 cm. broad; surface dry, covered with numerous small fibrillose scales, glabrous on the disk, ochraceous; margin at length splitting and repand; lamellae adnexed, elliptic, ventricose, close to subdistant, medium-broad, whitish

to pallid-ochraceous, then olivaceous-brown; stipe equal, innately fibrous-striate, sometimes twisted, minutely pruinose at the apex, elsewhere with scattered fibrils, white then tinged straw-colored, 4–6.5 cm. long, 2–5 mm. thick; spores elliptic-ovoid, smooth, inequilateral, 9–10 × 4–5 μ; cystidia short, thin-walled or wall slightly thickened, moderately abundant, cylindric or slightly tapering downward, projecting a little above the hymenium, 30–40 × 8–11 μ; basidia 25–27 × 7–8 μ.

TYPE LOCALITY: Ithaca, New York.
HABITAT: On the ground in low woods.
DISTRIBUTION: New York and Michigan.

51. **Inocybe squamosa** Bres. Atti Accad. Rovereto III. **8**: 129. 1902.

Pileus rather thin, convex, then expanded, obtuse to umbonate, 1–1.5 cm. broad; surface dry, covered with small, fibrillose-hairy scales, ochraceous or tawny-ochraceous, subglabrous at the disk, often areolate; lamellae sinuate-adnexed, subdistant, broad, pale-fulvous, the edges fimbriate; stipe subequal, stuffed to hollow, fibrillose, pallid or pale-yellowish, 1–3 cm. long, 2–4 mm. thick; spores ellipsoid-ovoid, inequilateral, smooth, 8–10 (–11) × 5–6 (–7) μ; cystidia thin-walled, subcylindric or slightly ventricose, tapering to a short pedicel, rounded at the apex, scattered on the sides, more numerous and with the wall slightly thickened on the edges of the lamellae, 60–90 × 8–15 μ.

TYPE LOCALITY: Portugal.
HABITAT: On the ground.
DISTRIBUTION: New York and Michigan; also in Europe.

52. **Inocybe lacera** (Fries) P. Karst. Bidr. Finl. Nat. Folk **32**: 457. 1879.

Agaricus (*Inocybe*) *lacerus*, Fries, Syst. Myc. 1. 257. 1821.
Agaricus (*Inocybe*) *infelix* Peck, Ann. Rep. N. Y. State Mus. **32**: 29. 1879.
Inocybe infelix Peck, Bull. N. Y. State Mus. 1[2]: 13. 1888.
Inocybe Raveneli Massee, Ann. Bot. **18**: 485. 1904.
Inocybe euthelella Peck, Bull. N. Y. State Mus. 176: 19. 1915.

Pileus subconvex, or subcampanulate at first, then convex-expanded, umbonate to obsoletely subumbonate, dry, 1–3 (–4) cm. broad, usually not large; surface dry, at first lanuginose or fibrillose-floccose varying to appressed-fibrillose, at length fibrillose-scaly, lacerate-scaly or subsquarrose-scaly, sometimes subdenuded, umber or snuff-brown when young and fresh, varying through Natal-brown (R), Dresden-brown (R) and tawny-ochraceous (R) with age, or umber-lutescent, sometimes subrimose; margin usually subfibrillose, the cortina fugacious; context whitish; lamellae adnexed, broad, ventricose, close, whitish then fuscous-brownish to grayish-cinnamon or darker (not rufescent in American form); stipe firm, toughish, softer at the apex, equal, solid or persistently stuffed, scarcely enlarged at the base, naked at the apex, floccosely-fibrillose to glabrescent, concolorous downward, paler or whitish above, whitish within (not rufescent in American form), 3–4 cm. long, 3–5 mm. thick; spores elongate-subcylindric or slightly narrowed toward one end, frequently subtruncate at one end, smooth, 10–13 (–20) × 4–5.5 (–6) μ; cystidia thin-walled, broadly subcylindric to subventricose or ventricose-subovoid, rounded or obtuse at the apex, on a slender pedicel, scattered on the sides, ventricose-obtuse, hyaline, numerous, and somewhat smaller on the edges of the lamellae, 50–70 × 15–20 μ.

TYPE LOCALITY: Europe.
HABITAT: Along roadsides, on lawns, in coniferous and frondose woods, and in sphagnum swamps.
DISTRIBUTION: New England and Canada to Virginia, Alabama, and Michigan; Washington and Oregon; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 583* (*415*); Pat. Tab. Fung. *f. 531;* Ricken, Blätterp. Deutschl. *pl. 30, f. 4.*

53. **Inocybe leptocystis** Atk. Am. Jour. Bot. **5**: 212. 1918.

Pileus slightly fleshy, campanulate, then convex, at length expanded-umbonate, 1–3 (–4) cm. broad; surface dry, innately silky-fibrillose, at length minutely lacerate or subscaly, sometimes remaining smooth, Mars-brown (R), tawny with age; context whitish; lamellae adnexed, narrow, crowded, subventricose, grayish, then avellaneous-clay-colored (R), the edges white-fimbriate; stipe equal or somewhat thickened at the base, solid, slightly silky-

fibrillose, pallid or tinged dingy-incarnate, white-mycelioid at the base, 3–6 cm. long, 2–6 mm. thick; spores subelliptic, smooth, inequilateral, 7–9 × 4–5 μ; cystidia thin-walled, cylindric or cylindric-capitate to subventricose, on a slender pedicel, hyaline, 50–65 × 12–16 μ.

TYPE LOCALITY: Ithaca, New York.
HABITAT: In coniferous or mixed woods.
DISTRIBUTION: New York and Michigan.

54. Inocybe flocculosa (Berk.) Sacc. Syll. Fung. 5: 768. 1887.

Agaricus (Inocybe) flocculosus Berk. in Smith, Engl. Fl. 5²: 97. 1836.

Pileus thin, subconic to subcampanulate, expanded-umbonate, 5–15 mm. broad; surface dry, appressed-fibrillose-scaly, tawny-brown with tinge of fuscous; lamellae rounded-adnate, broad, ventricose, close to subdistant, brownish-cinereous, then concolorous, the edges white-fimbriate; stipe equal, hollow, pruinose-hoary, scurfy at the apex, tinged brown, 1–2 cm. long, 1–2 mm. thick; spores elliptic-ovoid, smooth, 7–9 × 4–5.5 (–6) μ; cystidia moderately thick-walled, moderately abundant, subventricose-sublanceolate above a short pedicel, hyaline, 45–65 × 10–15 μ.

TYPE LOCALITY: England.
HABITAT: On low, moist ground in woods or swamps.
DISTRIBUTION: Massachusetts to Michigan; Colorado; also in Europe.
ILLUSTRATION: Cooke, Brit. Fungi *pl. 393* (*416*).

55. Inocybe minima Peck, Mycologia 5: 69. 1913.

Pileus thin, fragile, subconic, then convex to nearly plane, sometimes umbonate, 5–15 mm. broad; surface dry, minutely tomentose-fibrillose, tawny-brown; margin involute and sometimes split; lamellae adnate, subdistant, pale-tawny-brown or darker, the edges white-fimbriate; stipe slender, equal, solid, pallid, 1–2 cm. long, 1–1.5 mm. thick; spores subellipsoid, smooth, inequilateral, 7–9 × 4–5 μ; cystidia moderately thick-walled, abundant, subventricose-fusoid or sublanceolate above a short pedicel, hyaline, 60–75 × 12–18 μ.

TYPE LOCALITY: South Acton, Massachusetts.
HABITAT: In gravelly soil.
DISTRIBUTION: New England to North Carolina.

56. Inocybe atripes Atk. Am. Jour. Bot. 5: 210. 1918.

Pileus slightly fleshy, ovoid, then convex-expanded, subumbonate, 1–3.5 cm. broad; surface dry, appressed-fibrillose-scaly rarely subsquarrose, areolate-cracked on the center, tawny-olive to raw-umber, darker on the disk; context white, the odor rather distinct when bruised; lamellae adnexed, thin, subventricose, moderately broad, white at first, finally tawny-olive, the edges white-fimbriate; stipe equal or slightly enlarged at the base, flexuous, solid, pruinose at the apex, subfibrillose or slightly lacerated downward, smoky-fuscescent, finally fuliginous except the whitish apex, white-mycelioid at the base, 3–6 (–7) cm. long, 3–6 mm. thick; spores ovoid or subellipsoid, smooth, inequilateral, 7–9.5 (–10) × 5–5.5 (–6) μ; cystidia subcylindric-clavate, thick-walled, hyaline, tapering to a short pedicel, rather abundant, 45–55 × 12–15 (–20) μ.

TYPE LOCALITY: Ithaca, New York.
HABITAT: Under pines and shrubs.
DISTRIBUTION: New York, Maryland, and Wyoming.

57. Inocybe retipes Atk. Am. Jour. Bot. 5: 215. 1918.

Pileus rather thin, campanulate, subexpanded, umbonate, 1–3.5 cm. broad; surface dry, appressed-fibrillose-scaly, silky-fibrillose toward the margin, cracked on the umbo, Brussels-brown (R); context white; lamellae adnate, subdistant, moderately broad, avellaneous, then wood-brown (R), the edges white-fimbriate; stipe equal, solid, fibrillose-reticulate, the reticulum Brussels-brown (R), interspaces paler, white within, 5–7 cm. long, 3 mm. thick; spores narrowly elliptic-ovoid, inequilateral, smooth, 9–11 (–12) × 5–6 μ; cystidia moderately thick-walled, slender, subcylindric-subfusiform, obtuse at the apex, on a short pedicel, abundant on the sides and the edges of the lamellae, 60–75 × 10–15 (–18) μ.

TYPE LOCALITY: Seventh Lake, Adirondack Mountains, New York.
HABITAT: On swampy ground in mixed woods.
DISTRIBUTION: Known only from the type locality.

58. **Inocybe longipes** C. H. Kauffman, sp. nov.

Pileus subconic, then campanulate-expanded, umbonate, 3–6 cm. broad; surface dry, fibrillose-scaly on the center, becoming long-rimose toward the margin, cream-colored to isabelline; margin decurved; lamellae adnexed, narrow, broader in front, close, whitish-avellaneous, then cinnamon-brown, the edges white-fimbriate; stipe subequal or tapering upward, clavate-subventricose enlarged toward the base, stuffed to hollow, glabrescent, striatulate, the same color as the pileus or paler, 4–8 cm. long, 4–10 mm. thick; spores elliptic-amygdaliform, smooth, inequilateral, pale-ochraceous under the microscope, 8–10 × 5–6 μ; cystidia thick-walled, moderately abundant, hyaline, rather stout, ventricose above a short thick pedicel, obtuse at the apex, 45–50 × 12–16 μ.

Type collected on the ground in coniferous woods, Welches, Oregon, October 6, 1922, *C. H. Kauffman* (herb. Univ. of Mich.).
Distribution: Washington and Oregon.

59. **Inocybe excoriata** Peck, Bull. N. Y. State Mus. 75: 16. 1904.

Pileus rather fleshy, broadly conic, soon broadly convex, umbonate, 3–5 cm. broad; surface dry, innately fibrillose, at length somewhat lacerate or excoriate, walnut-brown (R) to army-brown (R); margin cortinate-silky, the cortina whitish, evanescent; context white; lamellae adnexed, then emarginate and decurrent by a tooth, narrow, close, white becoming browinsh-gray or avellaneous, the edges white-fimbriate; stipe equal, solid, innately silky-fibrillose, white or whitish, same color within, 3–5 cm. long, 4–6 mm. thick; spores elliptic, smooth, inequilateral, 7–9 (–10) × 4.5–5.5 μ; cystidia thick-walled, ventricose-subfusoid, obtuse at the apex, with a short pedicel, hyaline, abundant on the sides and the edges of the lamellae, 50–65 × 12–18 μ.

Type locality: Lake Pleasant, New York.
Habitat: On the ground in woods.
Distribution: Massachusetts and New York.
Illustration: Bull. N. Y. State Mus. 75: *pl. O, f. 14–19.*

60. **Inocybe subdestricta** C. H. Kauffman, sp. nov.

Inocybe destricta minor C. H. Kauffman, Agar. Mich. 456. 1918.

Pileus rather thin, subconic, conic-campanulate, then expanded-umbonate, at length depressed around the darker, abrupt umbo, 2–4 cm. broad; surface dark-brown to rufous-brown, the umbo dark-chestnut or umber, dry, innately fibrillose at first, at length lacerate-scaly or rimose or both; context whitish, the odor slightly nauseous; lamellae sinuate-adnexed, or deeply emarginate, with a slight decurrent tooth, ventricose, medium-broad, close, whitish, then pale-brownish-ashy, the edges white-fimbriate; stipe equal, scarcely subbulbous, varying flocculose-fibrillose to glabrescent, solid, pruinose at the apex, pallid, tinged rufous, white within, 2.5–5 cm. long, 2.5–5 mm. thick; spores almond-shaped, subellipsoid, subinequilateral, smooth, 8–10 × 5–5.5 μ; cystidia rather thick-walled, varying thin-walled, subcylindric to ventricose, subovoid to subflaskshaped, obtuse at the apex, tapering to a short pedicel, abundant on the sides and the edges of the lamellae, 50–65 × 15–18 (–20) μ.

Type locality: New Richmond, Michigan.
Habitat: On the ground in mixed woods.
Distribution: New York to Tennessee and Michigan; Idaho.

61. **Inocybe ovalispora** C. H. Kauffman, sp. nov.

Pileus slightly fleshy, firm, convex, then expanded-plane, umbonate or subumbonate, 2–5 cm. broad; surface dry, innately silky, often becoming diffracted-scaly toward the margin, radially rimose to the umbo, chestnut-brown; context white; lamellae sinuate-adnexed, not broad, close, whitish, then clay-colored or brown, the edges white-fimbriate; stipe equal, scarcely subbulbous, glabrous, solid, white-pruinose at the apex, tinged rufous, slightly rufous or brownish within, 4–5 cm. long, 3–4 mm. thick; spores ovoid to subglobose, sometimes obscurely subangled, smooth, not truly angular, 6–7 (–7.5) × 5–6 μ; cystidia slightly thick-walled, hyaline, subcylindric or slightly ventricose above a short pedicel, numerous on the sides and the edges of the lamellae, 55–70 × 12–15 μ.

Type collected on the ground in frondose woods, Ann Arbor, Michigan, September 4, 1912, *C. H. Kauffman* (herb. Univ. of Mich.).
Distribution: Michigan and New York.

62. **Inocybe rimosa** (Bull.) Pat. Hymén. Eur. 118. 1887.

Agaricus rimosus Bull. Herb. Fr. *pl. 388.* 1788.

Pileus slightly fleshy, subconic, then campanulate, convex-expanded, umbonate, 1–3(–4) cm. broad; surface dry, distinctly or long-rimose, innately fibrillose, even or diffracted on the disk, Mars-brown (R) to ochraceous-tawny (R) sometimes rufescent; context compact, white; lamellae attenuate-adnexed or almost free, scarcely ventricose, at first brownish-clay-colored, distinctly darker, ferruginascent, the edges white-fimbriate; stipe solid, firm, terete, subbulbous at the base, innately fibrillose, mealy at the apex, white, scarcely or slightly ochraceous-tinged with age, 4–6 cm. long, 3–6 mm. thick; spores pip-shaped, attenuated toward one end, inequilateral, elliptic-subovoid, subobtuse at the narrow end, smooth, 9–11 (–13) × 4.5–6 μ; cystidia thick-walled, ventricose-sublanceolate above a short pedicel, sometimes stouter, obtuse at the apex, hyaline, moderately abundant on the sides, numerous on the edges of the lamellae, 50–65 × 12–18 (–22) μ.

TYPE LOCALITY: Europe.
HABITAT: In woods.
DISTRIBUTION: New York; also in Europe.
ILLUSTRATIONS: Pat. Tab. Fung. *f. 114.*

63. **Inocybe pallidipes** Ellis & Ev. Jour. Myc. 5: 24. 1889.

Pileus thin, subconic, then campanulate or expanded-plane, umbonate, 1–3.5 cm. broad; surface dry, innately fibrillose becoming minutely lacerate-scaly, sometimes the cuticle is cracked on the disk, subrimose on the margin, the rimosity usually short, clay-colored (R) or pale-brown drying darker; context whitish; lamellae adnexed or at length sinuate by a tooth, rather narrow to medium-broad, subventricose, close, pale-grayish-white, then tawny-olive (R), the edges white-fimbriate; stipe equal, subbulbous, solid, pruinose at the apex, with scattered close fibrils downward, white-mycelioid at the base, 2–5 cm. long, 2–4 mm. thick; spores narrow-elliptic, smooth, inequilateral, sometimes narrower toward one end, 7–9 (–10) × 4.5–5.5 μ; cystidia short, moderately thick-walled, ventricose-subcylindric or tapering upward from enlargement, with a short pedicel, medium-abundant, 45–55 × 12–15 μ.

TYPE LOCALITY: Newfield, New Jersey.
HABITAT: In frondose woods.
DISTRIBUTION: New England to North Carolina, and westward to Tennessee and Michigan; Wyoming, Washington, and Oregon.

64. **Inocybe eutheloides** (Peck), Bull. N. Y. State Mus. 1[2]: 13. 1888.

Agaricus (Inocybe) eutheloides Peck, Ann. Rep. N. Y. State Mus. **32**: 29. 1879.

Pileus thin, subconic, then campanulate, expanded-umbonate, 1–2.5 cm. broad; surface dry, silky-fibrillose, at length distinctly rimose, sometimes lacerate and subscaly, fawn-colored to grayish-fawn; context white; lamellae adnexed, rather broad, ventricose, close, whitish, then brownish-cinnamon, the edges white-fimbriate; stipe equal, subbulbillate at the base, solid, densely white-fibrillose when young, subglabrescent, scurfy-pruinate at the apex, 2–5 cm. long, 2–4 mm. thick; spores elliptic-ovoid, subacute at the end, smooth 7 (–10) × 4.5–5.5 μ; cystidia thick-walled, narrowly flaskshaped above a short pedicel, hyaline, very abundant on the sides and the edges of the lamellae, 50–60 × 12–15 μ.

TYPE LOCALITY: Brewerton, New York.
HABITAT: On the ground in frondose or mixed woods.
DISTRIBUTION: New England to North Carolina, and westward to Michigan; Washington.

65. **Inocybe violaceifolia** Peck, Ann. Rep. N. Y. State Mus. 41: 66. 1888.

Pileus thin, subconic, then convex to nearly plane, obsoletely umbonate, 1–2.5 cm. broad; surface dry, flocculose-fibrillose, at length subscaly, grayish; lamellae adnexed, close, at first pale-violaceous, then brownish-cinnamon; stipe slender, equal, solid, fibrillose, white or whitish, 2–3 cm. long, 2 mm. thick; spores ellipsoid, smooth, inequilateral, 7–9 × 4.5–5.5 μ; cystidia of thin-walled type, subcylindric to subventricose, rounded at the apex, on a short pedicel,

scattered on the sides, abundant and often capitate on the edges of the lamellae, 45–55 × 12–15 μ.

TYPE LOCALITY: Selkirk, New York.
HABITAT: On mossy ground in woods.
DISTRIBUTION: Known only from the type locality.

66. **Inocybe lilacina** (Boud.) C. H. Kauffman, Agar. Mich. 466. 1918.

Agaricus geophylluslilacinus Peck, Ann. Rep. N. Y. State Mus. **26**: 90, in part. 1874.
Agaricus (*Inocybe*) *violaceus* Pat. Tab. Fung. **2**: 20. 1887. Not *A. violaceus* L. 1753.
Inocybe geophylla lilacina Boud. Ic. Myc. 1: 13. 1905.

Pileus thin, campanulate-convex, umbonate, 1–3 cm. broad; surface dry, innately silky, glossy, light-vinaceous-purple (R) to vinaceous-lilac (R), subpersisting when dried; context white; lamellae adnate, rounded behind, medium-broad, subventricose, whitish at first, then grayish-clay-colored or darker; stipe equal, subbulbous, persistently stuffed, silky, the same color as the pileus but paler, 2–4 cm. long, 2–4 mm. thick; spores ellipsoid, smooth, inequilateral, 7–9 × 4.5–5.5 μ; cystidia thick-walled, short, ventricose-subfusiform, on a short pedicel, abundant on the sides and the edges of the lamellae, 45–55 × 12–15 μ.

TYPE LOCALITY: France.
HABITAT: In frondose and coniferous woods.
DISTRIBUTION: New England to North Carolina and Minnesota; Washington, Oregon, Idaho, and California; also in Europe.
ILLUSTRATIONS: Boud. Ic. Myc. *pl. 125;* Pat. Tab. Fung. *f. 545;* Ricken, Blätterp. Deutschl. *pl. 30, f. 2.*

67. **Inocybe Godeyi** Gill. Champ. Fr. 517. 1876.

Inocybe rubescens Gill. Rev. Myc. **5**: 31. 1883.
Agaricus (*Inocybe*) *Trinii* Pat. Tab. Fung. **1**: 157. 1885. Not *A. Trinii* Weinm. 1836.
Agaricus (*Inocybe*) *Trinii rubescens* Pat. Tab. Fung. **1**: 156. 1885.
Inocybe Trinii Bres. Fungi Trid. **2**: 14. 1892. Not *I. Trinii* Sacc. 1887.
Inocybe repanda Quél. Fl. Myc. Fr. 101, in part. 1888.

Pileus slightly fleshy, subconic, then campanulate-convex, expanded, umbonate, 1–3 cm. broad (in American form); surface dry, innately silky, becoming radially virgate, sometimes subscaly around the umbo, whitish at first, sometimes ochraceous-tinted, becoming suffused with a rufous tinge, at length cinnamon-rufous (R); margin rarely at length rimulose; context white at first, slowly assuming a rufous tint when cut; lamellae sinuate-adnexed, rather narrow, subventricose, close, whitish then cinnamon-brown, with rufous tinge, the edges white-fimbriate; stipe equal, solid, with a slight emarginate bulb, or slightly enlarged at the base, innately silky, sometimes longitudinally rimulose, white-pruinose at the apex, at length rufous-tinged like the pileus, 3–6 cm. long, 1.5–3.5 mm. thick; spores variable in different collections, ellipsoid-ovoid and pointed at one end, or ellipsoid-ovoid, inequilateral, 10–12 × 5–6 μ or 8–10 × 5–6 μ, or intermediate, smooth; cystidia thick-walled, hyaline, ovoid-sublanceolate, above a slender pedicel, to broadly ventricose-fusiform, moderately abundant on the sides, more on the edges of the lamellae, 50–65 × 12–24 μ.

TYPE LOCALITY: France.
HABITAT: In moist coniferous woods, and in cedar swamps.
DISTRIBUTION: Maine, New York, and Michigan; also in Europe.
ILLUSTRATIONS: Boud. Ic. Myc. *pl. 122;* Bres. Fungi Trid. *pl. 120;* Pat. Tab. Fung. *f. 341, 345;* Ricken, Blätterp. Deutschl. *pl. 30, f. 3.*

68. **Inocybe serotina** Peck, Bull. N. Y. State Mus. 75: 17. 1904.

Inocybe bulbosa Peck, Bull. Torrey Club **36**: 333. 1909.
Inocybe ammophila Atk. Am. Jour. Bot. **5**: 210. 1918.

Pileus fleshy, firm, campanulate to convex-expanded, obtuse or broadly umbonate 3–7 (–10) cm. broad; surface dry, sometimes rimose-diffracted with age, whitish tinged brownish on the center, or yellowish toward the margin; margin fibrillose; context white; lamellae adnexed or nearly free, close, rounded behind, ventricose, whitish then brownish-cinnamon, the edges white-fimbriate; stipe equal, long or short, solid, fibrous, white, narrowed toward the base, or the base bulbous from a mass of sand adhering to its mycelium, 2–7 (–15) cm. long, 6–15 mm. wide; spores large and variable in size, smooth, elliptic-ovoid, subelongate, inequi-

lateral, pale-ochraceous under the microscope, 10–16 (–18) × 6–8 μ; cystidia subcylindric to clavate-subventricose, rounded, broad at the apex, very thick-walled, the thickening often extending around the entire cystidium, subsessile or tapering to a short pedicel, hyaline, present or almost lacking on the sides, abundant and shorter to broadly elliptic on the edges of the lamellae, 30–70 × 15–30 μ.

TYPE LOCALITY: Sodus Bay, Wayne County, New York.
HABITAT: On sandy shores.
DISTRIBUTION: New York, Michigan, California, and Wyoming.

69. Inocybe comatella (Peck) Sacc. Syll. Fung. 5: 791. 1877.

Agaricus (*Inocybe*) *comatellus* Peck, Ann. Rep. N. Y. State Mus. **38**: 87. 1885.

Pileus submembranous, convex or expanded, sometimes papillate, 4–8 mm. broad; surface dry, clothed with dense whitish or grayish hairs; margin substrigose; lamellae adnexed, close to subdistant, pale-grayish then pale-tawny; stipe equal, solid, flexuous, minutely flocculose-pruinose, pallid tinged reddish-brown, white-mycelioid at the base, 1–2.5 cm. long, 0.8–1 mm. thick; spores ellipsoid-ovoid, smooth, 6–8 × 3–4 μ; cystidia moderately thick-walled, ventricose-sublanceolate to subfusoid, abundant on the sides and the edges of the lamellae, 45–55 × 10–15 (–20) μ.

TYPE LOCALITY: Caroga, New York.
HABITAT: On rotten wood.
DISTRIBUTION: New York to North Carolina.
ILLUSTRATION: Ann Rep. N. Y. State Mus. **38**: *pl. 2, f. 5–8.*

70. Inocybe corydalina Quél. Champ. Jura Vosg. 3: 115. 1875.

Pileus slightly fleshy, subconic to campanulate, then expanded-umbonate, the umbo rather broad and obtuse, 3–6 cm. broad; surface dry, innately fibrillose, sometimes subscaly around the umbo, sometimes diffracted on the disk, whitish and streaked with bister-colored fibrils, the umbo at length greenish to olivaceous, more or less glaucous; margin rimose; context white, the odor rather strong; lamellae adnate then sinuate, narrow, rather crowded, pallid then cinnamon-brown (R), the edges white-fimbriate; stipe equal or slightly incrassate toward the base, often curved below, solid, whitish then fuscescent, white within but often changing to greenish at the base when cut, pruinose at the apex, 3–5 cm. long, 2–5 mm. thick; spores ovoid-subcuneate, subinequilateral, smooth, 8–9.5 (–10) × 5–5.5 (–6) μ; cystidia short, wall slightly thickened, moderately abundant to scattered, subpyriform to ventricose-subovoid, tapering to a slender pedicel, hyaline, 45–55 × 15–18 μ; sterile cells saccate-clavate, on the edges of the lamellae.

TYPE LOCALITY: France.
HABITAT: In mixed woods.
DISTRIBUTION: Maryland, New York, and Colorado; also in Europe.

71. Inocybe sindonia (Fries) P. Karst. Bidr. Finl. Nat. Folk 32: 465. 1879.

Agaricus (*Inocybe*) *sindonius* Fries, Epicr. Myc. 176. 1838.

Pileus slightly fleshy, subconic-ovoid then campanulate, expanded and broadly umbonate, 2–6 cm. broad; surface dry, at first floccose-fibrillose with dense white fibrils, subglabrescent with age, whitish becoming straw-yellow to dingy-ochraceous with age; context compact, white; lamellae emarginate-adnexed or almost free, moderately broad, ventricose, close, at first pale-grayish-white then grayish-clay-colored; stipe equal above the subemarginate bulb, stuffed, often striate, at first fibrillose, silky shining, white or whitish, 3–6 cm. long, 4–9 mm. thick; spores ellipsoid, smooth, inequilateral, subacute at the end, 8–10 × 5–6 μ; cystidia thick-walled, hyaline, stout, ventricose, subovoid-lanceolate above a short pedicel, abundant on the sides and the edges of the lamellae, 60–80 × 15–20 μ.

TYPE LOCALITY: Sweden.
HABITAT: In coniferous and frondose woods.
DISTRIBUTION: New England to Virginia, and westward to Michigan, Colorado, Washington, and Oregon; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 400* (*438*); Ricken, Blätterp. Deutschl. *pl. 30, f. 7.*

72. Inocybe insinuata C. H. Kauffman, sp. nov.

Pileus slightly fleshy, subovoid, campanulate, finally convex-expanded, obtuse or broadly subumbonate, 3–5 cm. broad; surface dry, innately silky-fibrillose, chalky white; margin even; context white; lamellae sinuate-adnexed, narrow, close, whitish then pale-rusty-clay-colored stipe short, equal above the subemarginate bulb, stuffed to hollow, innately fibrillose-silky, white, 2.5–4 cm. long, 6–8 mm. thick; spores ellipsoid-ovoid, inequilateral, pale-rusty-tinged under the microscope, smooth, 8–9 × 4.5–5.5 μ; cystidia thin-walled, mostly slender, cylindric to subventricose above a slender pedicel, rarely elliptic and broad, hyaline, scattered on the sides, more numerous on the edges of the lamellae, 55–65 × 8–15 μ.

Type collected on the ground under pines, on the campus, University of California, Berkeley, California, January 29, 1915, *W. A. Setchell 1063* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

73. Inocybe geophylla (Fries) P. Karst. Bidr. Finl. Nat. Folk 32: 464. 1879.

Agaricus (Inocybe) geophyllus Fries, Syst. Myc. 1: 258. 1821.

Pileus thin, subconic, then expanded-umbonate, 1.5–2.5 cm. broad; surface dry, very silky and glossy, white or whitish; context white; lamellae adnexed, close, rather broad, ventricose, whitish then pale-grayish-clay-colored; stipe slender, equal, firm, stuffed, silky, white, pruinose at the apex, 3–5 cm. long, 2–3 mm. thick; spores subellipsoid, smooth, inequilateral, 8–9 × 4.5–5.5 (–6) μ; cystidia moderately thick-walled, hyaline, subventricose-subfusoid, abundant on the sides and the edges of the lamellae, 45–58 × 12–15 (–18) μ.

TYPE LOCALITY: Europe.
HABITAT: On the ground in frondose and coniferous woods.
DISTRIBUTION: New England to North Carolina and Tennessee, west to the Mississippi River; Idaho; Washington to California; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 401 (440);* Dufour, Atl. Champ. *pl. 40, f. 93;* Gill. Champ. Fr. *pl. 354 (364);* Pat. Tab. Fung. *f. 228;* Mycologia 6: *pl. 137, f. 6.*

74. Inocybe sambucella Atk. Am. Jour. Bot. 5: 215. 1918.

Pileus slightly fleshy, subovoid, then convex-expanded, gibbous, obtuse, at length subrepand, 1.5–2.5 cm. broad; surface dry, glabrous, subsilky, whitish; lamellae adnexed, rounded behind, close, écru-drab (R) at maturity, the edges white-fimbriate; stipe equal, stuffed, fibrous-striate, pruinose at the apex, white, 3–5 cm. long, 4–6 mm. thick; spores suboblong to subovoid, smooth, 7–9 (–10) × 4–5 (–6) μ; cystidia thick-walled, short, obese, subfusiform to broadly ventricose-ovoid above a short pedicel, subacute to subacuminate above, hyaline, moderately abundant on the sides and the edges of the lamellae, 40–50 × 12–18 μ.

TYPE LOCALITY: Ithaca, New York.
HABITAT: In mixed woods.
DISTRIBUTION: Known only from the type locality.

75. Inocybe scabella Fries, Hymen. Eur. 235. 1874.

Agaricus (Inocybe) scabellus Fries, Syst. Myc. 1: 259. 1821.

Pileus thin, conic-campanulate, expanded, 1.5–2.5 cm. broad; surface dry, innately silky, then minutely appressed-fibrillose-scaly, the umbo small, naked, cinnamon-brown to sordid-alutaceous; context pallid; lamellae sinuate-adnexed, subdistant, ventricose, pale-grayish-white then sordid-cinnamon, the edges white-fimbriate; stipe equal, stuffed, subfibrillose, glabrescent, pallid or fuscescent, 2–4 cm. long, 1–2 mm. thick; spores ellipsoid-almond-shaped, smooth, 10–13 × 5–6 μ; cystidia thick-walled, fusoid-ventricose, abundant on the sides and the edges of the lamellae, 60–70 × 13–14 μ.

TYPE LOCALITY: Sweden.
HABITAT: In grassy places or on gravelly banks.
DISTRIBUTION: New England to Michigan; Washington and Oregon; also in Europe.
ILLUSTRATIONS: Bres. Fungi Trid. *pl. 86, f. 1;* Fries, Ic. Hymen. *pl. 110, f. 1;* Pat. Tab. Fung. *. 229.*

76. **Inocybe rufidula** C. H. Kauffman, sp. nov.

Inocybe scabella rufa C. H. Kauffman, Agar. Mich. 466. 1918.

Pileus thin, subconic, then campanulate-convex, at length expanded, mammillate, 1–2 cm. broad; surface dry, innately silky-fibrillose, sometimes minutely lacerate, virgate, rufous (R) or cinnamon-rufous (R); context pallid; lamellae sinuate-adnexed, moderately broad, subdistant, pale-brownish-grayish then darker, the edges white-fimbriate; stipe equal, slender, solid, toughish, slightly fibrillose, pale-rufous throughout the apex, white-mealy at the apex, tinged rufous within, 5–6 cm. long, 1–2 mm. thick; spores elliptic to elongate-ellipsoid, smooth, 9–11 (–13) × 5–6.5 μ; cystidia thin-walled, subcylindric or subventricose-cylindric above a short pedicel, scattered on the sides, more numerous on the edges of the lamellae, 60–75 × 12–18 μ.

TYPE LOCALITY: Houghton, Michigan.
HABITAT: In swampy or mossy wet places in cedar and hemlock woods.
DISTRIBUTION: Michigan and New York.

77. **Inocybe pallidobrunnea** C. H. Kauffman, sp. nov.

Pileus thin, subconic at first, then campanulate, expanded-umbonate, the umbo obtuse, 1.5–3 cm. broad; surface dry, silky, sometimes innately minute-scaly, uniformly tawny-olive (R) to cinnamon (R); margin even; context pallid; lamellae adnate, narrow, crowded, white then pale-fuscous, the edges white-fimbriate; stipe firm, equal, slightly subbulbous to attenuate at the base, flexuous, solid, pruinose at the apex, naked elsewhere, white-mycelioid at the base, colored like the pileus but paler, pallid within, 3–6 cm. long, 2–4 mm. thick; spores ellipsoid, smooth, inequilateral, 9–10 (–12) × 5–5.5 μ; cystidia thin-walled or slightly thickened, slender, subventricose-subcylindric above a pedicel, subobtuse at the apex, hyaline, not abundant on the sides, more on the edges of the lamellae, 70–90 (–95) × 12–15 μ.

Type collected on the ground in frondose woods, Ann Arbor, Michigan, August 15, 1915, *C. H. Kauffman* (herb. Univ. Mich.).
DISTRIBUTION: Michigan.

78. **Inocybe agglutinata** Peck, Ann. Rep. N. Y. State Mus. 41: 67. 1888.

Pileus thin, subconic, then campanulate or convex, umbonate, 1–3 cm. broad; surface fibrillose, dry, streaked with appressed-agglutinate fibrils, pale-tawny, the umbo usually darker; lamellae adnexed, close, broad, ventricose, at first whitish then brownish-cinnamon, the edges white-fimbriate; stipe firm, equal, solid, white or whitish, pruinose at the apex, brownish or tawny or fibrillose below, 3–5 cm. long, 2–4 mm. thick; spores elliptic-subcuneate in one view, inequilateral in the other view, smooth, obtuse at both ends, 9–11 (–12) × 5–5.5 (–6) μ; cystidia thick-walled, tapering below or with an abruptly slender pedicel, variable in shape, ovoid to ventricose-elliptic or subcylindric, hyaline, rather abundant on the sides, more on the edges of the lamellae, 50–60 (–70) × 12–18 μ.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: In coniferous woods.
DISTRIBUTION: New England and New York.

79. **Inocybe virgata** Atk. Am. Jour. Bot. 5: 218. 1918.

Pileus thin, campanulate, then expanded, umbonate, 1.5–2.5 cm. broad; surface dry, innately silky, the umbo very dark-brown, paler toward the margin; margin virgate and subrimose; lamellae adnate, sinuate-uncinate, subdistant, broad, subventricose, whitish at first, at length fulvo-olivaceous, the edges white-fimbriate; stipe equal, concolorous, paler above, white-mycelloid at the base, brown-tinged within, 5–7 cm. long, 3–4 mm. thick; spores ellipsoid, ovoid-elliptic or ovoid, smooth, inequilateral, 7–10 (–11) × 5–6 μ; cystidia thin-walled, or slightly thickened, elliptic-subcylindric to ventricose-subovoid or broadly clavate, obtuse or rounded, tapering to a short pedicel, hyaline, scattered on the sides, more on the edges of the lamellae, 40–65 × 15–22 μ.

TYPE LOCALITY: Oakland, Maryland.
HABITAT: On low moist ground or in swamps.
DISTRIBUTION: Maryland, Washington, and Oregon.

80. **Inocybe connexa** C. H. Kauffman, sp. nov.

Pileus thin, subconic to campanulate, then convex-expanded, obtusely umbonate, 2–3.5 cm. broad; surface dry, innately silky-fibrillose, sometimes slightly scaly, yellow-ocher (R); margin paler, white-silky; context white, the odor farinaceous; lamellae sinuate-adnexed, close, rather broad, white at first then grayish-clay-colored, the edges white-fimbriate; stipe subequal, subbulbous, somewhat loosely fibrillose, stuffed, white or whitish, mycelioid at the base, 3–5 cm. long, 3–6 mm. thick; spores elliptic-ovoid, smooth, inequilateral, 8–9.5 (–10) × 5–5.5 (–6) μ; cystidia thin-walled, subcylindric to subventricose, tapering to a slender pedicel, hyaline, scattered on the sides, clustered-tufted on the edges of the lamellae, 60–75 × 12–18 (–20) μ.

Type collected on the ground under pines, Stow, Massachusetts, September 25, 1916, *Simon Davis* (herb. Univ. Mich.).

DISTRIBUTION: New England, New York, and Wyoming.

81. **Inocybe subochracea** (Peck) Earle, Torreya 3: 170. 1903.

Agaricus (Hebeloma) subochraceus Peck, Ann. Rep. N. Y. State Mus. 23: 95. 1872.
Hebeloma subochracea Sacc. Syll. Fung. 5: 796. 1887.

Pileus rather fleshy, subconic to subovoid at first, then convex-expanded, obtusely umbonate or the umbo obsolete, 2–3.5 cm. broad, rarely broader; surface dry, appressed-fibrillose or at length appressed-subscaly or sublacerate, yellow-ocher (R) to ochraceous-buff (R), sometimes tawny on the disk; margin rarely subrimose; context whitish or tinged yellowish; lamellae sinuate-adnexed, close, not broad, whitish at first, then honey-yellow (R) to tawny-olive (R), the edges white-flocculose; stipe equal, more or less subbulbous, solid, subfibrillose, whitish, becoming sordid-pale-ochraceous, white within, 3–6 (–9) cm. long, 3–4 (–7) mm. thick; spores ellipsoid-subcuneate in one view, inequilateral in the other view, smooth, 7–9 × 4.5–5.5 μ; cystidia thick-walled, often with yellowish content, slender, fusoid to sublanceolate, abundant on the sides and the edges of the lamellae, 60–75 (–80) × 10–15 μ.

TYPE LOCALITY: Sandlake, New York.

HABITAT: In frondose and coniferous woods.

DISTRIBUTION: New England to North Carolina, Tennessee, and Michigan; Oregon and Washington.

ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. 54: *pl. H, f. 23–29;* Hard, Mushr. *f. 281.*

82. **Inocybe submuricellata** Atk. Am. Jour. Bot. 5: 216. 1918.

Pileus thin, campanulate, then expanded and umbonate, 2–3 cm. broad; surface dry, finely fibrillose-scaly, clay-colored (R) to pale-ochraceous; lamellae attenuate-adnexed, pale-clay-colored, the edges white-fimbriate; stipe equal, fibrillose-striatulate, pruinose at the apex, with loose fibrils downward, 4–5 cm. long, 3–4 mm. thick; spores ellipsoid-ovoid, inequilateral, 8–10 (–12) × 5–6 μ; cystidia moderately thick-walled, ventricose-subcylindric above a slender pedicel, hyaline, sometimes constricted below the apex, abundant on the sides and the edges of the lamellae, 50–70 × 10–15 (–20) μ.

TYPE LOCALITY: Ithaca, New York.

HABITAT: Under coniferous trees.

DISTRIBUTION: Known only from the type locality.

83. **Inocybe marmoripes** Atk. Am. Jour. Bot. 5: 213. 1918.

Pileus rather fleshy, convex, obtuse, 2–5 cm. broad; surface dry, appressed-fibrillose-scaly, sometimes squarrose with erect scales on the disk, ochraceous-tawny (R) or Dresden-brown (R); context pallid; lamellae adnate, narrow, tawny-olive to olive, then darker, the edges white-fimbriate; stipe equal or slightly enlarged at the base, at first clothed with a thin lanuginose covering, which breaks into floccose-fibrillose scales in an irregular concentric manner, stuffed, ochraceous-tawny, 3–5 cm. long, 3–6 mm. thick; spores narrow, elongate-suboblong, not subreniform, subinequilateral, slightly narrowed toward one end, smooth, 9–13 × 3.5–5 μ; cystidia none; sterile cells clavate, on the edges of the lamellae.

TYPE LOCALITY: Ithaca, New York.

HABITAT: On the ground in mixed woods.

DISTRIBUTION: New York, Maryland, and Washington.

84. **Inocybe calamistrata** (Fries) P. Karst. Bidr. Finl. Nat. Folk **32**: 454. 1879.

Agaricus (*Inocybe*) *calamistratus* Fries, Syst. Myc. **1**: 256. 1821.

Pileus slightly fleshy, campanulate-convex, obtuse, 1–4 cm. broad; surface dry, soon broken up into dense, bister-colored (R), squarrose scales; context becoming reddish-tinted when cut, darker with age; lamellae adnate-seceding or becoming sinuate, broad, close, soon army-brown (R), at length rusty-sprinkled, the edges white-flocculose; stipe equal or tapering up or down, firm, subrigid, solid, clothed with recurved, fibrillose scales, at length fibrillose, fuscous to bone-brown, paler above, smoky-greenish-blue below, 4–8 cm. long, 2–5 mm. thick; spores subreniform, oblong, smooth, obtuse at both ends, 10–12 (–13) × 5–6 μ; cystidia none; sterile cells clavate-saccate, on the edges of the lamellae.

TYPE LOCALITY: Sweden.
HABITAT: In coniferous and frondose woods.
DISTRIBUTION: New England to North Carolina, through Canada and Michigan; Washington and Oregon; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 389* (*407*); Fries, Ic. Hymen. *pl. 106, f. 2;* Gill. Champ. Fr. *pl. 343* (*360*).

85. **Inocybe mutata** (Peck) Massee, Ann. Bot. **18**: 496. 1904.

Agaricus (*Hebeloma*) *mutatus* Peck, Ann. Rep. N. Y. State Mus. **24**: 69. 1872.
Hebeloma mutatum Sacc. Syll. Fung. **5**: 797. 1887.

Pileus thin, conic at first, then campanulate to expanded-umbonate, 1.5–2.5 cm. broad; surface dry, squarrose-scaly to fibrillose-scaly, at length often denuded, dark-brown to wood-brown; lamellae emarginate-adnexed, broad, at first rounded behind, close, whitish then pale-brown to darker; stipe slender, equal, solid, floccose-scaly, sometimes subsquarrose, often curved at the base, concolorous, 5–8 cm. long, 2–4 mm. thick; spores subreniform, oblong, obtuse at both ends, smooth, 9–10 (–12) × 5–6 μ; cystidia none; sterile cells clavate-saccate, on the edges of the lamellae.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: On damp ground in coniferous or mixed woods.
DISTRIBUTION: New England to North Carolina.

86. **Inocybe Caesariata** (Fries) P. Karst. Bidr. Finl. Nat. Folk **32**: 459. 1879.

Agaricus (*Inocybe*) *Caesariatus* Fries, Epicr. Myc. 176. 1838.
Inocybe fibrillosa Peck, Ann. Rep. N. Y. State Mus. **41**: 65. 1888.

Pileus somewhat fleshy, broadly convex, obtuse, 2–5 cm. broad; surface dry, at first densely tomentose-fibrillose, at length appressed-fibrillose-scaly or subsquarrose-scaly, varying yellow-ocher (R), ochraceous-buff (R), or tawny; margin appressed-fibrillose, incurved, and at first connected with the stem by a veil; context white, at length ochraceous-tinged; lamellae adnate-seceding or at length subdecurrent by a tooth, rounded behind, rather broad, ventricose, dull-ochraceous-yellowish to rusty-ochraceous, the edges white-flocculose; stipe equal, usually short, densely floccose-fibrillose, sometimes subscaly, concolorous, stuffed to hollow, flocculose-scurfy at the apex, ochraceous-tinged within, 1.5–4 cm. long, 2–6 mm. thick; spores subrenis form, short-oblong, obtuse at both ends, smooth, 8–10 × 5–6 μ; cystidia none; sterile cell-clavate-pyriform, on the edges of the lamellae.

TYPE LOCALITY: Sweden.
HABITAT: On bare ground, in grass, etc., in moist places.
DISTRIBUTION: New England to Virginia, west to Minnesota and Missouri; Washington, Idaho, and Wyoming; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 109;* Ricken, Blätterp. Deutschl. *pl. 31, f. 4.*

87. **Inocybe Lorillardiana** Murrill, Mycologia **3**: 101. 1911.

Pileus somewhat fleshy, subconic to convex, expanded-subumbonate, or obtuse, 1.5–3 (–4) cm. broad; surface dry, at first tomentose, then appressed-fibrillose-scaly, sometimes squarrose on the disk, yellowish-brown; context pale-yellow; lamellae broadly adnexed, crowded, moderately broad, at first whitish to pale-olive-buff (R), finally tawny-olive (R), the edges white-fimbriate; stipe equal or slightly tapering down, stuffed, the surface at first with thin tomentose

covering, which on breaking produces conspicuous floccose scales of rusty fibrils, paler between scales, 3–5 cm. long, 2–5 mm. thick; spores subreniform, oblong-ellipsoid, smooth, 8–10 (–12) × 5–5.5 μ; cystidia none; sterile cells clavate or subcapitate, on the edges of the lamellae.

TYPE LOCALITY: Bronx Park, New York City.
HABITAT: In grassy places and on lawns.
DISTRIBUTION: New York to Virginia and Missouri.
ILLUSTRATION: Mycologia 3: *pl. 40, f. 9.*

88. **Inocybe unicolor** Peck, Ann. Rep. N. Y. State Mus. **50**: 104. 1897.

Pileus thin, subconic to convex, then expanded, obtuse or plane, firm, 1–3 cm. broad; surface dry, tomentose-squamulose or squarrose-scaly, sometimes with erect scales, sometimes densely tomentose, honey-yellow to grayish-ochraceous, drying to "isabella color" (R); margin even, fibrillose; lamellae adnate, subdistant, broad, subventricose, pale-ochraceous at first, then tawny-brown with slight olive tint; stipe firm, equal, solid, fibrillose-squamulose, glabrescent, bulbillate, 1.5–3 cm. long, 2–5 mm. thick; spores 9–12 × 5–5.5 μ; elliptic, smooth, obtuse, subreniform; cystidia none; sterile cells saccate, on the edges of the lamellae.

TYPE LOCALITY: Menands, New York.
HABITAT: In open places on the ground.
DISTRIBUTION: New York to North Carolina and Ohio.

89. **Inocybe subrubescens** Atk. Am. Jour. Bot. **5**: 216. 1918.

Pileus slightly fleshy, campanulate, then expanded-umbonate, 1.5–2.5 cm. broad; surface dry, coarsely appressed-fibrillose-scaly on and about the umbo, more finely scaly toward the margin, dull-ochraceous, becoming suffused with a reddish color; lamellae adnexed, elliptic, whitish at first, then Mars-brown (R); stipe equal, solid, white, scurfy at the apex, subfibrillose downward, subochraceous, then tinged reddish, flesh-white becoming reddish, 4–5 cm. long, 4–6 mm. thick; spores subreniform, elliptic-ovoid, smooth, 12–15 (–17) × 6–7 (–8) μ; cystidia none; sterile cells clavate, on the edges of the lamellae.

TYPE LOCALITY: Ithaca, New York.
HABITAT: On the ground in woods.
DISTRIBUTION: Known only from the type locality.

90. **Inocybe jurana** (Pat.) Sacc. Syll. Fung. **5**: 778. 1887.

Agaricus (Inocybe) juranus Pat. Tab. Fung. **2**: 23. 1886.
Inocybe frumentacea Bres. Fungi Trid. **2**: 87. 1900.

Pileus fleshy, rigid-firm, ovoid-campanulate, then expanded and broadly umbonate, 3–8 cm. broad; surface innately fibrillose, becoming lacerated at times, at length more or less rimose, dry, the fibrils and scales brown-purplish to reddish-chestnut, assuming a dark vinaceous or purplish color with age; context white, thick, vinaceous under the cuticle; lamellae adnexed, then emarginate with a subdecurrent tooth, close, not broad, thickish, white at first, then brownish-avellaneous, becoming rufescent-spotted, the edges white-flocculose; stipe rather stout, equal, terete or compressed, stuffed, sometimes twisted, fibrillose, subflocculose at the apex, whitish at first, then rufous-vinaceous with age or when bruised, 3–8 cm. long, 6–12 mm. thick; spores broadly elliptic-subreniform, smooth, the epispore strongly colored under the microscope, 10–12 × 6–7 μ; cystidia none; sterile cells clavate to subcylindric, on the edges of the lamellae.

TYPE LOCALITY: Austria.
HABITAT: In low frondose woods.
DISTRIBUTION: Michigan and Ohio; also in Europe.
ILLUSTRATIONS: Bres. Fungi Trid. *pl. 87, 200;* C. H. Kauffman, Agar. Mich. *pl. 92* (as *I. frumentacea jurana*); Pat. Tab. Fung. *f. 551.*

91. **Inocybe tenerrima** Atk. Am. Jour. Bot. **5**: 216. 1918.

Pileus membranous, conic to subcampanulate-umbonate, 3–4 mm. broad and high; surface dry, reddish-brown nearly Brussels-brown (R), loosely fibrillose-scaly; lamellae adnate-adnexed, ventricose, avellaneous (R) then pale-umber-brown; stipe filiform, solid, equal, loosely fibrillose from the universal veil, pruinose at the apex, concolorous or darker at the base, 2–3 cm. long,

1 mm. thick; spores ellipsoid-fabiform, inequilateral, smooth, 9–12 (–15) × 6–7 (–8) μ; cystidia none; sterile cells subcylindric-subventricose or subcapitate, small, on the edges of the lamellae.

TYPE LOCALITY: Danby, New York.
HABITAT: On the ground in woods.
DISTRIBUTION: Known only from the type locality.

92. Inocybe anomala Murrill, Mycologia 8: 312. 1916.

Melanoleuca anomala Murrill, Mycologia 5: 214. 1913.

Pileus plane, solitary, 2 cm. broad; surface dry, decorated with dense, minute, hairy fascicles ferruginous; margin entire, concolorous or slightly paler; lamellae adnate to slightly sinuate, broad, not rounded, ventricose, white becoming lateritious where bruised; stipe equal, cylindric, fragile, even, glabrous above, fibrillose below, solid or stuffed, isabelline, 3.5 cm. long, 3 mm. thick; spores ellipsoid, smooth, pale-yellowish-brown, 5–6 × 3–4 μ; cystidia none.

TYPE LOCALITY: Palo Alto, California.
HABITAT: Under redwood trees.
DISTRIBUTION: Known only from the type locality.

93. Inocybe subdecurrens Ellis & Ev. Jour. Myc. 5: 27. 1889.

Inocybe tomentosa Ellis & Ev. Jour. Myc. 5: 26. 1889.

Pileus rather thin, subovoid at first, then convex, subexpanded to plane, obtuse, umbonate, or subdepressed with age, 2–4 (–5) cm. broad; surface dry, with a thin lanuginose covering, or appressed-pilose, nonrimose, tawny-olive(R) at first fading to cinnamon-buff (R), sublutescent; context moist at first then pallid; lamellae broadly adnate, subdecurrent by a tooth or line, rather broad, close, seceding, pallid at first then ochraceous-tawny (R), then cinnamon-brown (R), the edges minutely subfimbriate; stipe equal, stuffed, soon hollow, slightly and loosely fibrillose, or fibrillose-striate, whitish to cinnamon-buff, white-mycelioid at the base, 2.5–4 cm. long, 3–5 mm. thick; spores elliptic-oblong, not reniform, smooth, obtuse at both ends, variable in size, 8–10 (–12) × 5–5.5 (–6) μ; cystidia none; sterile cells short, on the edges of the lamellae.

TYPE LOCALITY: Newfield, New Jersey.
HABITAT: In mixed woods.
DISTRIBUTION: Canada to Virginia and Alabama; Wyoming.
EXSICCATI: Ellis & Ev. N. Am. Fungi *1906*.

94. Inocybe subtomentosa Peck, Ann. Rep. N. Y. State Mus. 48: 109. 1897.

Pileus slightly fleshy, dry, convex, then expanded, 1–4 (–5) cm. broad; surface minutely or obscurely tomentose, nonlacerate, uniformly brownish-tawny, nonrimose; lamellae adnate, subemarginate, close, whitish at first then yellowish-olivaceous, finally brownish-tawny, the edges white-flocculose; stipe short, solid, slightly silky-fibrillose, concolorous or paler than the pileus, 1.5–2.5 cm. long, 2–3 mm. thick; spores subellipsoid, short, nonreniform, obtuse at both ends, 7–8.5 (–9) × 5–6 μ; cystidia none; sterile cells prominent, on the edges of the lamellae.

TYPE LOCALITY: Rouse's Point, New York.
HABITAT: In gravelly soil.
DISTRIBUTION: New England and New York.

95. Inocybe Cookei Bres. Fungi Trid. 2: 17. 1892.

Pileus rather thin, subconic-campanulate, expanded-umbonate, 1.5–4 cm. broad; surface innately silky-fibrillose, dry, rimose, glabrous on the center, straw-yellow, becoming sordid-lutescent; margin at length wavy and split; context whitish; lamellae sinuate-adnexed or almost free, scarcely subventricose, narrow, close, white at first soon tinged cinereous, then ochraceous-cinnamon, the edges white-fimbriate; stipe equal, solid, innate-silky-fibrillose, pruinose at the apex, with a distinct, emarginate bulb, whitish-lutescent, 2.5–5 cm. long, 3–5 mm. thick; spores subreniform, ellipsoid-oblong, obtuse at both ends, smooth, 8–10 × 4.5–5.5 μ; sterile cells clavate, on the edges of the lamellae.

TYPE LOCALITY: Austria.
HABITAT: On mossy ground in coniferous and mixed woods.
DISTRIBUTION: New England to North Carolina, and westward to Michigan; also in Europe.
ILLUSTRATION: Bres. Fungi Trid. *pl. 121*.

96. **Inocybe lanatodisca** C. H. Kauffman, Agar. Mich. 459. 1918.

Pileus slightly fleshy, subovoid, then convex-campanulate, obtuse or broadly umbonate, 2–4 cm. broad; surface dry, at first covered with a white, mold-like silkiness, later subzonate by the subconcentric arrangement of the white fibrils, rimose, ground-colored, pale-ochraceous-brownish, or pale-tawny; context white, the odor nauseous when crushed; lamellae adnexed-emarginate, moderately broad, close, at length cinereous-alutaceous, the edges white-fimbriate; stipe equal or subequal, solid, glabrescent, pruinate-scaly at the apex, white, becoming pale-sordid-yellowish with age, 3–5 cm. long, 4–6 mm. thick; spores subreniform, ellipsoid, obtuse at both ends, smooth, 9–10.5 × 5–6 μ; cystidia none; sterile cells clavate, on the edges of the lamellae.

TYPE LOCALITY: Ann Arbor, Michigan.
HABITAT: On low ground in frondose woods.
DISTRIBUTION: New York and Michigan.

97. **Inocybe fastigiata** (Schaeff.) P. Karst. Bidr. Finl. Nat. Folk 32: 461. 1879.

Agaricus fastigiatus Schaeff. Fung. Bavar. *pl. 26.* 1762,
Agaricus (*Inocybe*) *fastigiatus* Fries, Epicr. Myc. 174, in part. 1838.
Agaricus (*Inocybe*) *servatus* Britz. Jahresb. Nat. Ver. Augsburg **28**: 154. 1885.

Pileus thin, conic, then conic-campanulate, sometimes ovoid-campanulate, at length subexpanded, usually with a more or less acute, prominent umbo, 2–7 cm. broad; surface dry, innately radially fibrillose, virgate, long-rimose, dull-yellow-ocher (R) to rich yellowish-fuscous, sometimes bister on the umbo, sometimes paler; margin finally split or repand; context white, the odor strong and disagreeable, or lacking; lamellae adnexed, becoming sinuate-free, narrower posteriorly, not broad, subventricose, close to crowded, whitish at first soon tinged olive or gray, darker with age; stipe equal or tapering upward, solid, subfibrillose, sometimes twisted, white or slightly fuscescent, 4–8 cm. long, 4–10 mm. thick; spores subreniform, elliptic in the other view, obtuse at both ends, smooth, 9–12 × 5–6 μ; cystidia none; sterile cells saccate, on the edges of the lamellae.

TYPE LOCALITY: Austria.
HABITAT: On the ground in moist woods.
DISTRIBUTION: New England and Canada to Virginia and Alabama, and westward to Minnesota; Washington, Oregon, and Idaho; also in Europe.
ILLUSTRATIONS: Berk. Outl. Brit. Fungol. *pl. 8, f. 4;* Bres. Fungi Trid. *pl. 57;* Cooke, Brit. Fungi *pl. 383) 426);* E. & P. Nat. Pfl. 1[1]**: 242. *f. 117;* Fries, Ic. Hymen. *pl. 108, f. 1;* C .H. Kauffman, Agar. Mich. *pl. 93;* Pat. Tab. Fung. *f. 343;* Richon & Roze, Atl. Champ. *pl. 21, f. 9–14;* Ricken, Blätterp. Deutschl. *pl. 31, f. 1.*

98. **Inocybe rimosoides** Peck, Bull. N. Y. State Mus. 150: 32. 1911.

Pileus thin, subconic to broadly campanulate, subexpanded or repand, the umbo prominent, often subacute, 2–4 cm. broad; surface dry, innately silky-fibrillose, shining, radially long-rimose, splitting on the margin, maize-yellow (R) to chamois (R); context white, moist; lamellae sinuate-adnexed or almost free, sometimes subdecurrent by a tooth, narrow, crowded, whitish then avellaneous to rusty-cinnamon, the edges white-fimbriate; stipe slender, equal or with subbulbous base, strict, solid at first, soon hollowed by grubs, pruinose at the apex, glabrous elsewhere, pallid, whitish within, 2.5–6 cm. long, 2–4 mm. thick; spores subreniform, elliptic, smooth, obtuse at both ends, 8–9 (–10) × 4.5–5 μ; cystidia none; sterile cells clavate, on the edges of the lamellae.

TYPE LOCALITY: Menands, New York.
HABITAT: In grassy places and open woods.
DISTRIBUTION: New England to North Carolina, and westward to Michigan.

99. **Inocybe Curreyi** (Berk.) Sacc. Syll. Fung. **5**: 775. 1887.

Agaricus (*Hebeloma*) *Curreyi* Berk. Outl. Brit. Fungol. 155. 1860.

Pileus rather thin, irregularly convex-campanulate, obtuse, not umbonate, often gibbous, 2–4 cm. broad; surface innately fibrillose at length rimose, pale-tawny-yellowish; margin usually wavy; context white; lamellae slightly adnexed, rather broad and rounded behind, close,

becoming smoky-olivaceous, the edges white-fimbriate; stipe tapering upward from a subclavate base, not bulbous, solid, subfibrillose, glabrescent, whitish at first, furfuraceous-scaly at the apex, 2–4 cm. long, 2–4 mm. thick; spores subreniform, ellipsoid, obtuse at both ends, smooth, 7–9.5 × 5–5.5 μ; cystidia none; sterile cells clavate-saccate, on the edges of the lamellae.

TYPE LOCALITY: England.
HABITAT: On the ground in low woods.
DISTRIBUTION: Michigan; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 398* (*428*); Pat. Tab. Fung. *pl. 537*.

100. **Inocybe sororia** C. H. Kauffman, sp. nov.

Pileus thin, subconic to conic-campanulate, then expanded-umbonate, subconic or acute, 2–5 (–7) cm. broad; surface dry, innately silky-fibrillose, at length long-rimose, at first cream-colored (R) to straw-yellow (R) or mustard-yellow (R), sordid and darker with age, the umbo darker, prominent; margin at length split and recurved; context pallid or yellowish-tinted, dingy with age, the odor somewhat pungent or lacking; lamellae attenuate-adnate, rather narrow, varying 2–5 mm. wide, close to crowded, at first whitish or yellow-tinted, then olive-buff (R) to mustard-yellow (R) or old-gold (R), the edges white-fimbriate; stipe strict, equal or tapering upward above the rounded, subbulbous base, the bulb subobsolete, at first silky-cortinate, glabrescent, innately fibrillose, solid, pruinose at the apex, whitish, becoming dingy with age, 3–7 cm. long, 2–4 (–5) mm. thick; spores elliptic or elongate-ellipsoid, not truly subreniform, subinequilateral, obtuse at both ends, very variable in size, 9–13 (–16) × 5.5–6 (–8) μ; cystidia none; sterile cells clavate, on the edges of the lamellae.

Type collected on the ground in frondose woods, Ann Arbor, Michigan, July 23, 1920, *D. V. Baxter* (herb. Univ. Mich.).
DISTRIBUTION: New England to Virginia, and westward to Oregon and Washington.

101. **Inocybe fastigiella** Atk. Am. Jour. Bot. 5: 211. 1918.

Inocybe rimosa Ricken, Blätterp. Deutschl. 111. 1911. Not *I. rimosa* Pat.1887.
Inocybe brunnescens Atk. Am. Jour. Bot. 5: 211. 1918. Not *I. brunnescens* Earle, 1904.

Pileus slightly fleshy, ovoid-campanulate, then expanded-umbonate, 2–5 (–6) cm. broad; surface dry, innately fibrillose, sometimes slightly lacerate-scaly, radially rimose, Prouts-brown (R) to tawny-olive (R), becoming clay-colored (R), drying darker, the umbo sepia (R), obtuse; margin at length split or repand; context white or pallid; lamellae sinuate-adnexed or almost free, narrow, crowded, scarcely ventricose, pallid at first, then avellaneous to cinereous-clay-colored, darker with age, the edges white-fimbriate; stipe equal above the subbulbous base, slightly fibrillose, glabrescent, solid, often curved downward, whitish, brunnescent with age, white-pruinose, at the apex white within, 4–8 cm. long, 4–7 mm. thick; spores subreniform, short-ellipsoid, smooth, 7–9 (–10) × 4.5–5.5 μ; cystidia none; sterile cells clavate-saccate, on the edges of the lamellae.

TYPE LOCALITY: Ithaca, New York.
HABITAT: On the ground in low frondose or mixed woods.
DISTRIBUTION: New England to North Carolina, and Alabama, and westward to Michigan and Missouri; also in Europe.
ILLUSTRATION: Ricken, Blätterp. Deutschl. *pl. 30, f. 8*.

102. **Inocybe umbrinella** Bres. Ann. Myc. 3: 161. 1905.

Pileus somewhat fleshy, campanulate to expanded-umbonate, rarely papillate or gibbous, 2.5–5 cm. broad; surface silky, at length rimose, lubricous-umber to lurid-gray, umber-cinnamon on the disk; context white, the odor lacking; lamellae sinuate-adnate, crowded, whitish at first, at length umber-colored; stipe equal above the subbulbous base, solid, fibrillose-pruinate, furfuraceous-subflocculose at the apex, glabrescent, white, fuscescent below, 3–5 cm. long, 3–6 mm. thick; veil white, cortina-like, evanescent; spores subreniform, elliptic, smooth, 10–12 (–13) × 5.5–6.5 (–7) μ; cystidia none; sterile cells on the edges of the lamellae.

TYPE LOCALITY: Austria.
HABITAT: In mixed woods.
DISTRIBUTION: Virginia; also in Europe.

103. **Inocybe squamosodisca** Peck, Bull. N. Y. State Mus. 75: 18. 1904.

Pileus fleshy, firm, convex, 2–5 cm. broad; surface dry, innately silky, fibrillose on the margin, glabrous elsewhere except on the diffracted-scaly disk, ochraceous-buff; context whitish or yellowish-white; lamellae adnate, rather broad, moderately close, pale-ochraceous, becoming darker with age; stipe short, firm, equal, solid, innately fibrillose, concolorous, 2–4 cm. long, 4–6 mm. thick; spores subreniform, smooth, elliptic-oblong, 8–10 × 5–6 μ; cystidia none; sterile cells clavate, on the edges of the lamellae.

TYPE LOCALITY: Scanandaga Lake, New York.
HABITAT: Under pine trees.
DISTRIBUTION: New York.
ILLUSTRATION: Bull. N. Y. State Mus. 75: *pl. O, f. 10–13.*

104. **Inocybe brunnescens** Earle, Bull. N. Y. Bot. Gard. 3: 300. 1904.

Pileus somewhat fleshy, campanulate and subgibbous, then obtusely expanded, 3–7 cm. broad; surface dry, superficially radiate-fibrillose, with minute, floccose scales on the disk, shining, dry, brown, shading to chestnut on the margin, paler on the disk; margin nonrimose, rarely laciniate, at length repand; lamellae subsinuate by a small decurrent tooth, close, broad, ochraceous-brown, the edges white-fimbriate; stipe equal, glabrous or subfibrillose, solid, whitish, brown below, white within and unchangeable, 5–7 cm. long, 8–12 mm. thick; spores subreniform, elliptic, smooth, obtuse at both ends, 8–10 × 5–6 μ; cystidia none; sterile cells on the edges of the lamellae.

TYPE LOCALITY: New York Botanical Garden, New York City.
HABITAT: On decaying oak leaves.
DISTRIBUTION: Known only from the type locality.

105. **Inocybe glaber** C. H. Kauffman, Agar. Mich. 468. 1918.

Pileus thin, at first narrowly elliptic-ovoid, then campanulate-expanded and umbonate, 1.5–3.5 cm. broad; surface glabrous to subfibrillose, moist, the umbo sublubricous, sordid-ochraceous-brown to livid-brown; context becoming soft and fragile in wet weather, the odor nauseous or slightly radishy; lamellae almost free, rather narrow, close, pallid then pale-fuscous-brown, the edges white-fimbriate; stipe glabrous, equal above the bulbillate base, even, solid, white or pallid, 3.5–5 cm. long, 2.5–4 mm. thick; spores subreniform, smooth, 7–9 × 4–5 μ; cystidia none; sterile cells subcylindric to capitate, on the edges of the lamellae.

TYPE LOCALITY: Ann Arbor, Michigan.
HABITAT: In low frondose woods.
DISTRIBUTION: Michigan.

DOUBTFUL AND EXCLUDED SPECIES

Inocybe coloradoensis (Tracy & Earle) Earle, Torreya **3**: 169. 1903. (*Naucoria coloradoensis* Tracy & Earle, in Greene, Pl. Baker. **1**: 25. 1901.) This has somewhat the appearance of *Inocybe unicolor*, but the spores are different.

Inocybe diminuta Peck, Bull. N. Y. State Mus. 105: 23. 1906.

Inocybe leptocystella Atk. Am. Jour. Bot. **5**: 212. 1918.

Inocybe nodulispora (Peck) Sacc. Syll. Fung. **9**: 95. 1891. (*Agaricus nodulisporus* Peck, Ann. Rep. N. Y. State Mus. **32**: 28. 1880.)

Inocybe strigosa Peck, Bull. N. Y. State Mus. 131: 116. 1909. (*Paxillus strigosus* Peck, Bull. Buffalo Soc. Nat. Sci. **1**: 56. 1873.)

Inocybe subroindica Banning; Peck, Ann. Rep. N. Y. State Mus. **44**: 182. 1891. (*I. rubroindica* Sacc. Syll. Fung. **11**: 52. 1895.)

Inocybe tuberosa Clements, Bot. Surv. Neb. **2**: 40. 1893. Not seen.

Inocybe umboninota Peck, Bull. N. Y. State Mus. 139: 58. 1910. (*Agaricus umboninotus* Peck, Ann. Rep. N. Y. State Mus. **38**: 87. 1885.) There are two different collections at Albany corresponding to these citations, but the material on which the original description is based is not the same as that described in 1910, here re-named *I. prominens*.

Subtribe 3. **PHOLIOTANAE** (key, continued*)

(Lamellae not readily separable from the context.)
Volva or annulus present.
Volva absent, annulus present, the latter not conspicuous when the veil is arachnoid.
Annulus continuous, conspicuous.
Stipe glabrous or fibrillose. 74. PHOLIOTA.
Stipe squarrose-scaly. 75. HYPODENDRUM.
Annulus arachnoid, inconspicuous; universal veil arachnoid and distinct from the cuticle. 76. CORTINARIUS.
Volva present, annulus absent. 77. LOCELLINA.
Volva and annulus both present. 78. ROZITES.

74. PHOLIOTA† (Fries) Quél. Champ. Jura Vosg. 91. 1872.

Agaricus § *Pholiota* Fries, Syst. Myc. **1**: 240. 1821.
Pholiotina Fayod, Ann. Sci. Nat. VII. **9**: 359. 1889.
Pholidotopsis Earle, Bull. N. Y. Bot. Gard. **5**: 443. 1909.

Plants fleshy, putrescent, solitary to cespitose, geophilous or xylophilous; pileus glabrous to distinctly scaly; lamellae adnexed to slightly decurrent; spores ferruginous to fuscous, smooth or rough; stipe central, fleshy, glabrous to fibrillose, or somewhat scaly (but not both pileus and stipe distinctly scaly unless the stipe is sheathed); veil present, forming a distinct though often evanescent annulus; typically with no brown sterile organs in the hymenium.

Type species, *Pholiota dura* (Bolt.) Quél.

I. SPECIES OCCURRING IN TEMPERATE NORTH AMERICA

Plants growing on the ground or among moss.
Spores elongate-ovoid or elongate-elliptic, smooth, 10–14 μ long; cystidia abundant, projecting conspicuously, flask-shaped with a long neck; pileus and stipe not scaly or the latter only slightly so at the very base; young plants distinctly brown or blackish-brown in color.
Plants less than 1.5 cm. broad; known only from the Pacific coast. 1. *P. subnigra.*
Plants 2–5 cm. broad; lamellae 2–4 mm. broad. 2. *P. aggericola.*
Plants 4–10 cm. broad; lamellae 4–7 mm. broad. 3. *P. ombrophila.*
Spores ovoid with a truncate apex, smooth, 8–10 μ or more long; rather large species, none less than 3 cm. broad when mature, not at all scaly, white to ochraceous or tan, often hygrophanous.
Spores 11–15 μ long. 4. *P. vermiflua.*
Spores 8–10 μ long.
Plants growing on the ground in open woods. 5. *P. Howeana.*
Plants growing on humus in rich woods. 38. *P. acericola.*
Plants growing in cultivated fields or in grassy places, rarely in open grassy woods or among straw and other waste vegetable matter carried into the woods.
Spores 4.5–6 μ broad; pileus white or tinged with yellow or tan; lamellae narrow or medium-broad, sometimes somewhat sinuate. 6. *P. candicans.*
Spores 6–7 μ broad; pileus ochraceous-yellow; lamellae very broad, obliquely truncate-sinuate. 7. *P. temnophylla.*
Spores 5–7 μ long, smooth; plants with fibrillose-scaly pileus and stipe; pileus 1–4 cm. broad. 20. *P. terrestris.*
Spores rough-walled; plants medium-sized to large, 3–15 cm. broad; annulus not median.
Plants dark-colored, i.e. golden-brown to umber or smoky. 16. *P. trachyspora.*
Plants bright-colored, i.e. ochraceous-buff to zinc-orange. 14. *P. McMurphyii*
Spores variable, typically truncate at the apex; plants with slender stipes and small pilei, none more than 4 cm. broad; with a prominent-persisting usually median annulus striate on the upper side; plants without scales.
Plants growing among *Polytrichum* moss. 12. *P. minima.*
Plants growing in wet places among *Sphagnum* moss. 13. *P. mycenoides.*
Plants growing on the ground or among leaf-mold, but not among moss.
Plants yellowish-red or dark-ferruginous and retaining these colors in herbarium specimens; stipe 1–2.5 cm. long. 8. *P. rugosa.*
Plants watery-brown when fresh, ochraceous in herbarium specimens; stipe 8–10 cm. long.
Spores 6.5–9 μ long. 9. *P. blattaria.*
Spores 9–10.5 μ long.
Stipe 2 mm. or more thick; medium-slender plants more than 1 cm. broad. 10. *P. togularis.*

* See N. Am. Flora **10**: 145, for the beginning of the key to the subtribe Pholiotanae.
† By LEE ORAS OVERHOLTS.

Stipe about 1 mm. thick; very slender plants less than 1 cm. broad. 11. *P. filaris.*
Spores variable; plants not having all the characters of any of the above sections.
Plants growing among *Polytrichum* moss; pileus less than 1 cm. broad. 12. *P. minima.*
Plants not as above.
Stipe conspicuously white-tomentose below the annulus; pileus isabelline tinted with rose; cystidia rather abundant; spores 8–10 μ long; plants western. 15. *P. albivelata.*
Plants not as above; spores usually smaller.
Stipe scaly; pileus yellowish-red or ochraceous-orange to tawny; brown cystidia abundant in the hymenium. 29. *P. rigidipes.*
Stipe not scaly; pileus pallid to ochraceous or cinnamon-buff; no brown cystidia present.
Plants less than 3 cm. broad; western. 17. *P. anomala.*
Plants more than 3 cm. broad; eastern.
Spores constantly 6 μ or less long; annulus membranous, disappearing. 18. *P. duroides.*
Spores, considerable number in each mount measuring as much as 8 or 9 μ; annulus a persistent cottony roll on the stipe. 19. *P. Johnsoniana.*
Spores uniformly 9–10.5 × 6–7 μ. 7. *P. temnophylla.*
Plants growing on wood or about stumps or around rotten logs.
Both pileus and stipe decidedly scaly; spores smooth; brown cystidia present or absent.
With brown cystidia in the hymenium. 29. *P. rigidipes.*
With hyaline projecting cystidia in the hymenium. 28. *P. Schraderi.*
Without cystidia.
Pileus 0.5–2.5 cm. broad; pileus and stipe densely covered with a sheath of small erect conic superficial scales. 21. *P. erinaceëlla.*
Pileus 1–3 cm. broad, covered with a dense coating of soft fibrillose scales that are erect, if at all, only in the center of the pileus; stipe sparingly scaly or only fibrillose, not sheathed. 22. *P. muricata.*
Pileus 6–15 cm. or more broad, with large floccose patches or scales. 40. *P. destruens.*
Either pileus or stipe (not both) scaly; spores smooth; brown cystidia absent.
Pileus glabrous.
Plants watery-brown or cinnamon, 1–3 cm. broad. 31. *P. mutabilis.*
Plants ochraceous-orange, 5 cm. or more broad. 30. *P. oregonense.*
Pileus floccose or scaly.
Plants bright ochraceous-orange throughout, 2–5 cm. broad. 23. *P. curvipes.*
Plants cinnamon-rufous or tawny, 1–2.5 cm. broad. 32. *P. confragosa.*
Plants pallid to fawn-colored, 6–15 cm. broad. 40. *P. destruens.*
Plants not entirely as in either of the above sections.
Heavy fleshy species, 6 cm. or more broad and 2.5 cm. or more thick when mature, pallid or wood-colored and with fibrillose or floccose scales or patches; spores smooth, cystidia none. 40. *P. destruens.*
Plants not entirely as above.
Spores rough and cystidia absent; pileus yellow to tawny, not hygrophanous.
Pileus viscid; a small ochraceous or tan-colored plant scarcely more than 2–3 cm. broad. 36. *P. discolor.*
Plants not entirely as above.
Pileus with distinct shades of green or ashy-green when young or on being handled; flesh green-tinged; lamellae bright-colored and remaining so in dried plants; pileus scaly with fibrillose scales. 24. *P. aeruginosa.*
Plants not entirely as above.
Pileus 2–5 cm. broad, typically pinkish-red in color, squamulose with innate scales; flesh usually pale-lavender; lamellae bright-colored in dried plants. 25. *P. luteofolia.*
Plants not entirely as above.
Pileus 4–15 cm. broad at maturity, dry, glabrous or fibrillose or if squamulose then the scales definitely formed by the separation of a fibrillose cuticle; taste bitter or amygdaline. 27. *P. spectabilis.*
Pileus hygrophanous, glabrous, otherwise as in *P. spectabilis.* 26. *P. cerasina.*
Spores smooth or rough, if rough, then flask-shaped; cystidia present.
Stipe scaly; pileus glabrous. 31. *P. mutabilis.*
Stipe glabrous; pileus scaly or strongly floccose-fibrillose. 32. *P. confragosa.*
Stipe fibrillose to glabrous; pileus glabrous.
Plants uniformly less than 4 cm. broad.
Lamellae conspicuously forked. 33. *P. furcata.*
Lamellae not at all forked.
Spores with a truncate apex, 6–8 μ long; cystidia none; veil evanescent. 34. *P. marginella.*

Spores not truncate, 7.5–9.5 μ long; flask-shaped cystidia present and projecting, though often not abundant.
Pileus hygrophanous; annulus evanescent. 35. *P. marginata.*
Pileus viscid; annulus subpersistent. 36. *P. discolor.*
Pileus dry or hygrophanous; annulus at first funnel-shaped, persistent and conspicuous. 37. *P. unicolor.*
Plants at maturity more than 4 cm. broad.
Spores rough-walled at maturity. 35. *P. marginata.*
Spores entirely smooth-walled.
Cystidia present, flask-shaped, strongly projecting; pileus often rugose; on rotten wood or on humus. 38. *P. acericola.*
Cystidia present and rather abundant but projecting only slightly and more fusoid than flask-shaped; on recently felled logs or in wounds of living trees. 39. *P. Aegerita.*

II. SPECIES OCCURRING IN TROPICAL NORTH AMERICA

Spores rough-walled.
Plants growing among moss on the ground. 41. *P. bryophila.*
Plants growing on wood.
Pileus 3–10 cm. broad. 42. *P. Brittoniae.*
Pileus 0.5–2 cm. broad. 37. *P. unicolor.*
Spores smooth.
Spores 6–8 μ long.
Plants growing on the ground. 43. *P. cubensis.*
Plants growing on wood.
Pileus squamulose, reddish-brown in color. 44. *P. martinicensis.*
Pileus granular-tomentose, ochraceous in color. 45. *P. cinchonensis.*
Spores 8.5–10 μ long. 46. *P. avellanea.*
Spores 12–14 μ long. 47. *P. Broadwayi.*
Spores 16–20 μ long. 48. *P. Musae.*

1. **Pholiota subnigra** Murrill, Mycologia 4: 258. 1912.

Pileus 1.3 cm. broad, convex, slightly umbonate, uniformly fuscous or dusky-drab except on the margin where a hoary pubescence remains from the veil, otherwise glabrous, slightly viscid; lamellae sinuate-adnate, ventricose, medium-close, becoming fulvous, the edges whitish, 2 mm. broad; veil forming a persistent, white, superior, membranous annulus; stipe central, equal, pallid, rough with short, soft, whitish, conic scales pointing upward, solid, 2 cm. long, 2.5 mm. thick; spores somewhat elongate-ellipsoid, smooth, 10–13 × 5–6 μ; cystidia abundant, projecting, conspicuous, flask-shaped.

TYPE LOCALITY: Seattle, Washington.
HABITAT: Attached to a small buried root.
DISTRIBUTION: Known only from the type locality.

2. **Pholiota aggericola** (Peck) Sacc. Syll. Fung. 5: 740. 1887.

Agaricus aggericola Peck, Ann. Rep. N. Y. State Mus. **24**: 67. 1872.
Agaricus indecens Peck, Ann. Rep. N. Y. State Mus. **30**: 40. 1878.

Pileus 1–5 cm. broad, convex becoming plane or slightly depressed, rarely slightly umbonate, at first brown or blackish-brown, drying out to ochraceous-tawny or buckthorn-brown, or slightly darker in herbarium plants, somewhat viscid when moist, glabrous, even or somewhat reticulate, slightly striatulate at times on the margin; lamellae adnate or slightly decurrent, medium-close or slightly distant, 2–4 mm. broad, pallid or grayish, becoming rusty-brown, ochraceous-tawny to cinnamon in dried plants; veil forming a thin persistent, white, membranous, superior annulus; stipe central, equal, brownish below, white above the annulus, solid, pruinose above the annulus, fibrillose or glabrous below, or at times slightly squamulose at the base, 2.5–7 cm. long, 3–8 mm. thick; spores elongate-elliptic or elongate-ovoid, smooth, 11–15 × 5.5–7.5 μ; cystidia present, usually abundant, hyaline, 5–6 μ broad, projecting 30–40 μ.

TYPE LOCALITY: Greig, New York.
HABITAT: On the ground by roadsides and in woods.
DISTRIBUTION: Massachusetts, Connecticut, New York, and New Jersey.

3. **Pholiota ombrophila** (Fries) Sacc. Syll. Fung. 5: 737. 1887.

Agaricus ombrophilus Fries, Hymen. Eur. 216. 1874.
Pholiota washingtonensis Murrill, Mycologia **4**: 259. 1912.

Pileus 3–10 cm. broad, campanulate-convex to nearly plane, dull-brown, close to wood-brown or Verona-brown, russet or light-cinnamon in herbarium specimens, at first with a

few, white, floccose fibers or scales on the margin, soon glabrous, hygrophanous or subviscid when moist, even or faintly striate on the margin; context white or somewhat colored, with no odor and a mild taste; lamellae usually decurrent, medium-close or slightly distant, 4–6 mm. broad, clay-colored to rusty-brown, the edges white-crenulate in fresh plants; veil forming a median or superior membranous, broad, conspicuous, often striate, persistent annulus; stipe central, equal or enlarged below, whitish or brownish, often dark below, stuffed or hollow, 4–8 cm. long, 4–15 mm. thick; spores cylindric-elliptic or fusoid-elliptic, smooth, 11–15 × 5–7 μ; cystidia abundant, conspicuous, projecting 20–40 μ, flask-shaped.

TYPE LOCALITY: Europe.
HABITAT: In grassy places in woods or wooded pastures.
DISTRIBUTION: New York and westward to Washington; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 103, f. 2;* Trans. Wisc. Acad. **17**: *pl. 31.*

4. **Pholiota vermiflua** (Peck) Sacc. Syll. Fung. 5: 739. 1887.

Agaricus vermifluus Peck, Ann. Rep. N. Y. State Mus. **31**: 34. 1879.

Pileus 2–12 cm. broad, hemispheric to campanulate or plane, white, cream-colored or massicot-yellow, retaining these colors in drying, dry or moist or in wet weather almost viscid, glabrous or fibrillose on the margin from the veil, at maturity often becoming reticulate-areolate at the center; context rather thick, often with a slightly disagreeable taste, pure-white; lamellae slightly uncinate to broadly adnate or sinuate, close, 3–10 mm. broad, white, then dark-brown, ochraceous-tawny to buckthorn-brown in dried plants; veil white, membranous, forming a superior, often evanescent annulus, or adhering to the margin of the pileus; stipe central, equal or more often enlarged at the apex and tapering to a somewhat bulbous base, white or light-brown, fibrillose or glabrous, sometimes striate and pruinose at the apex, solid or with a small hollow, 5–12 cm. long, 3–15 mm. thick; spores ovoid or elliptic, more or less truncate at the apex, smooth, 10–14 × 6–8 μ; cystidia present, subglobose to pyriform with a tapering base, 35–45 × 20 μ, not prominent, sometimes quite rare.

TYPE LOCALITY: Ticonderoga, New York.
HABITAT: On the ground in cultivated, grassy, or waste places; not in dense woods.
DISTRIBUTION: New York to North Carolina and westward to the Pacific coast.
ILLUSTRATIONS: Trans. Wisc. Acad. **17**: *pl. 28, f. C–F, 29;* **18**: *pl. 11–13.*

5. **Pholiota Howeana** Peck, Bull. N. Y. State Mus. 122: 147. 1908.

Agaricus Howeanus Peck, Bull. Buffalo Soc. Nat. Sci. **1**: 53. 1873.

Pileus 2.5–8 cm. broad, convex then plane, subumbonate, yellowish or yellowish-brown, sometimes lighter and slightly rugulose when mature, sometimes darker in the center, dry, even, glabrous, even on the margin; context fragile, fleshy, with a bitter taste; lamellae sinuate-adnate or with a decurrent tooth when young, often entirely separating and leaving a distinct trace on the stipe, whitish, becoming ferruginous-brown, rather close, eroded, the edges lighter-colored; veil forming a conspicuous, persistent, superior annulus; stipe central, equal or slightly thickened at the base, colored similar to the pileus, glabrous or white-tomentose at the base, hollow, 5–11 cm. long, 4–7 mm. thick, sometimes with white mycelial cords at the base; spores ovoid or ovoid-elliptic, truncate at the apex, smooth, dilute-brown, 8–10 × 4.5–5.5 μ; cystidia present but quite rare, broadly flask-shaped, projecting, hyaline.

TYPE LOCALITY: Center, New York.
HABITAT: On the ground in open woods and bushy places, often among grass.
DISTRIBUTION: New York and perhaps Michigan.

6. **Pholiota candicans** (Schaeff.) Schroet. Krypt.-Fl. Schles. 3^1: 608. 1889.

Agaricus candicans Schaeff. Fung. Bavar. **4**: Ind. 50. 1774.
Agaricus praecox Pers. Comm. Fung. Bavar. 89. 1800.
Pholiota praecox Quél. Champ. Jura Vosg. 91. 1872.

Pileus 2–14 cm. broad, convex to campanulate or nearly plane, sometimes umbonate, often fuscous or fuscous-black when very young, soon whitish, often tinged with yellow or tan, or brownish at the center, usually ochraceous or tan in herbarium specimens, soft, glabrous, or at times as though finely tomentose, dry, areolate in dry weather or in large specimens; context white, with a strongly farinaceous odor; lamellae sinuate-adnate to broadly adnate, or with a

very slight decurrent tooth, medium-close, whitish, becoming brown or rusty-brown, honey-yellow to clay-colored or snuff-brown in herbarium specimens, 3–12 mm. broad; veil membranous, forming a white, superior, persistent or evanescent annulus, or partially adhering to the margin of the pileus; stipe central, equal or somewhat bulbous below, whitish, pruinose-mealy to slightly fibrillose, squamose, furfuraceous, or becoming nearly glabrous, often striate above the annulus, stuffed or hollow, 3–15 cm. long, 3–20 mm. thick; spores ovoid, usually with a truncate apex, smooth, deep-brown, 8.5–10 × 4.5–6 μ; cystidia present, flask-shaped or ventricose, sometimes rare, projecting somewhat, 14–18 μ in diameter.

TYPE LOCALITY: Europe.

HABITAT: On grassy ground, in lawns, fields, etc.; sometimes on the ground in open woods or in straw or other litter carried into woods.

DISTRIBUTION: Massachusetts to North Carolina, and westward to the Pacific coast; also in Europe.

ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **49**: *pl. 46;* Atk. Stud. Am. Fungi *pl. 42;* ed. 2. *pl. 46;* Berk. Outl. Brit. Fungol. *pl. 8, f. 1;* Bres. Fung. Mang. *pl. 49;* Cooke, Brit. Fungi *pl. 360* (*381*); Gill. Champ. Fr. *pl. 292* (*526*); Hard, Mushr. *f. 209;* C. H. Kauffman, Agar. Mich. *pl. 59;* Mem. N. Y. State Mus. **3**: *pl. 57;* Mycologia **3**: *pl. 49, f. 1;* Pat. Tab. Fung. *f. 112;* Quél. Champ. Jura Vosg. **1**: *pl. 7;* Schaeff. Fung. Bavar. *pl. 217;* Trans. Wisc. Acad. **17**: *pl. 27, 28, f. A, B.*

7. Pholiota temnophylla (Peck) Sacc. Syll. Fung. 5: 740. 1887.

Agaricus temnophyllus Peck, Ann. Rep. N. Y. State Cab. **23**: 90. 1872.

Pileus 2.5–5 cm. broad, hemispheric becoming convex, ochraceous-yellow, cinnamon-buff to ochraceous-tawny in dried plants, smooth, glabrous, dry; lamellae obliquely sinuate-adnate, medium-close, 4–8 mm. broad, brownish-ferruginous; veil membranous, white, forming a distinct, superior, persistent annulus; stipe central, equal, white, glabrous, hollow, 5–10 cm. long, 4–8 mm. thick; spores elliptic to ovoid, usually slightly truncate at one end, smooth, 9–10.5 × 6–7 μ; cystidia present but rather rare, flask-shaped or fusoid, hyaline, 17–21 μ in diameter, projecting prominently.

TYPE LOCALITY: Sandlake, New York.

HABITAT: Grassy ground by roadside.

DISTRIBUTION: Known only from the type locality, except as reported by Harper from Illinois.

ILLUSTRATION: Trans. Wisc. Acad. Sci. **17**: *pl. 33, f. A.*

8. Pholiota rugosa Peck, Ann. Rep. N. Y. State Mus. 50: 102. 1897.

Pileus 8–25 mm. broad, broadly conic or campanulate to convex or plane, sometimes umbonate, yellowish-red or dark-ferruginous, cinnamon or tawny in herbarium specimens, hygrophanous, glabrous, slightly rugose at the center, striate on the margin, often upturned with age; context very thin, concolorous, without a characteristic odor or taste; lamellae at first adnate, becoming adnexed or free with age, medium-close, the edges usually minutely denticulate, 1–3 mm. broad, yellowish-white, becoming ferruginous or brownish-ferruginous, amber-brown in dried plants; veil forming a white, persistent, membranous, median annulus, striate on the upper side; stipe central, equal or tapering upward, yellowish above, brownish or blackish-brown below, finely floccose below the annulus, pruinose or mealy above, hollow, 1–2 cm. long, 1.5–4 mm. thick; spores elongate-elliptic, slightly truncate at one end, smooth, 8–11 × 4–5 μ; cystidia none.

TYPE LOCALITY: Adirondack Mountains, New York.

HABITAT: On the ground in open woods; also in greenhouses.

DISTRIBUTION: New York, Pennsylvania, and Michigan.

9. Pholiota blattaria (Fries) Gill. Champ. Fr. 433. 1876.

Agaricus blattarius Fries, Syst. Myc. **1**: 246. 1821.

Pileus 1–4 cm. broad, convex to plane, obtuse or more often somewhat umbonate, clay-colored to ferruginous or hazel, ochraceous or cinnamon-buff on drying, hygrophanous, glabrous, striate or striatulate on the margin when moist, often becoming somewhat rugose on parting with the moisture; context concolorous, with no odor and a mild taste; lamellae rounded behind, soon becoming free, 2–4 mm. broad, close, ventricose, clay-colored to cinnamon; veil forming a subpersistent superior or median annulus, often striate on the upper side; stipe central, equal or tapering upward, covered with small white fibrils either entirely or only at the base, whitish

or slightly brownish, hollow, 2.5–5 cm. long, 2–4 mm. thick; spores ovoid or narrow-ovoid, sometimes with a slightly truncate apex, 6.5–9 × 4–5 μ; cystidia none.

Type locality: Europe.
Habitat: On the ground in wooded or grassy places.
Distribution: New York, Ohio, and Missouri; also in Europe.

10. Pholiota togularis (Bull.) Quél. Champ. Jura Vosg. 92. 1872.

Agaricus togularis Bull. Herb. Fr. *pl. 595, f. 2.* 1793.

Pileus 1–4 cm. broad, campanulate or convex becoming nearly plane, watery-brown when fresh, hygrophanous, becoming ochraceous on drying, warm-buff or ochraceous-buff in dried specimens, striatulate on the margin when moist, glabrous, even or perhaps rugose at times; lamellae sinuate and narrowly attached, medium-close or subdistant, yellow becoming pale-ferruginous, often ochraceous-buff in dried specimens; veil forming a conspicuous, persistent, median annulus, striate on the upper side; stipe central, equal, yellow at the top and brownish at the base or entirely brownish, slightly fibrillose, hollow, 2.5–10 cm. long, 2–5 mm. thick; spores narrow-ovoid or ovoid, truncate at the apex, smooth, 9–10.5 × 4–6 μ; cystidia none.

Type locality: Europe.
Habitat: On the ground in woods or pastures.
Distribution: Massachusetts, Virginia, and Michigan; also in Europe.
Illustrations: Bull. Champ. Fr. *pl. 595, f. 2;* Boud. Ic. Myc. *pl. 101;* Cooke, Brit. Fungi *pl. 350 (379);* Gill. Champ. Fr. *pl. 289 (530);* Trans. Wisc. Acad. **17**; *pl. 59* (as *P. blattaria*).

11. Pholiota filaris (Fries) Peck, Bull. N. Y. State Mus. 122: 144. 1908.

Agaricus togularis filaris Fries, Ic. Hymen. **2**: 2. 1877.

Pileus 0.5–2 cm. broad, camanulate or convex to plane, ochraceous when fresh, tawny or cinnamon-rufous in dried plants, glabrous, dry, striate on the margin, the striae visible in dried plants; context very thin; lamellae adnate, medium-close, yellow becoming pale-ferruginous, tawny or cinnamon-rufous in dried plants, 1–2 mm. broad; veil forming a distinct, persistent, median or superior though distant annulus, striate on the upper side; stipe central, equal, glabrous or slightly fibrillose, pallid to brown, hollow, 2–5 cm. long, 1–2 mm. thick; spores elongate-ellipsoid or elongate-elliptic, often inequilateral, truncate at the apex, smooth, brown, 9–10.5 × 4.5–5.5 μ; cystidia none.

Type locality: Europe.
Habitat: On the ground in woods or pastures.
Distribution: New York and Washington; also in Europe.
Illustration: Fries, Ic. Hymen. *pl. 104, f. 4* (as *Agaricus togularis*).

12. Pholiota minima Peck, Ann. Rep. N. Y. State Mus. 41: 65. 1888.

Pileus 3–8 mm. broad, hemispheric or campanulate, umbonate, brown when moist, pale-buff or yellowish-white when dry, brown in herbarium specimens, hygrophanous, glabrous, striatulate on the margin when moist; lamellae adnexed, subdistant, ferruginous, cinnamon in dried plants, 1–2 mm. broad; veil forming an evanescent medium or superior annulus; stipe central, equal, concolorous with the pileus, shining, glabrous, solid, 1–2.5 cm. long, 1–2 mm. thick; spores ovoid or elliptic, minutely asperulate, 6–8.5 × 3.5–4.5 μ; cystidia none.

Type locality: Catskill Mountains, New York.
Habitat: Among hair-cap mosses.
Distribution: New York and Alabama.

13. Pholiota mycenoides (Fries) Gill. Champ. Fr. 432. 1876.

Agaricus mycenoides Fries, Syst. Myc. **1**: 246. 1821.

Pileus 0.5–2 cm. broad, at first convex, at maturity plane, rather thin and membranous, rusty-brown when moist, buckthorn-brown to ochraceous-tawny in herbarium specimens, hygrophanous, drying first at the center and becoming ochraceous to deep-cream-colored, glabrous, widely striate on the margin and sometimes white-fibrillose from the cobwebby veil; context concolorous, with no odor and a mild or subfarinaceous taste; lamellae adnate or somewhat sinuate, and becoming nearly free, sometimes uncinate, medium-close or slightly distant,

rusty-brown, 2–3 mm. broad; veil forming a conspicuous, nearly median, membranous annulus, often striate on the upper side; stipe central, equal or tapering upward, slender, pallid to brown, glabrous or nearly so, hollow, 4–10 cm. long, 1–3 mm. thick; spores ovoid or broadly ovoid, truncate at the apex, smooth, 9–11.5 × 6–7.5 μ; cystidia none.

TYPE LOCALITY: Europe.
HABITAT: Among mosses, especially *Sphagnum*, in swampy places.
DISTRIBUTION: Massachusetts and perhaps Michigan; also in Europe.
ILLUSTRATIONS: Boud. Ic. Myc. *pl. 1, 2;* Cooke, Brit. Fungi *pl. 503 (405) B.*

14. **Pholiota McMurphyii** Murrill, Mycologia **4**: 260. 1912.

Pileus 4–8 cm. broad, convex to nearly plane, rather thick and fleshy, greenish-yellow at the margin, orange-cinnamon at the center, ochraceous-orange to tawny when dry, slimy-viscid, glabrous; context white, with no characteristic taste or odor; lamellae adnate or slightly sinuate, close, soon brownish, 4–8 mm. broad; veil forming an inconspicuous, fibrillose, superior, torn annulus; stipe central, equal, yellowish-white, solid, below the annulus rough with several conspicuous ridges, 4–6 cm. long, 1–2 cm. thick; spores ovoid or elliptic, quite rough, 13–17 (–21) × 7–7.5 (–10) μ; cystidia none.

TYPE LOCALITY: Searsville Lake, California.
HABITAT: On the ground among leaves in oak woods.
DISTRIBUTION: Known only from the type locality.

15. **Pholiota albivelata** Murrill, Mycologia **4**: 260. 1912.

Pileus 2–6 cm. broad, convex to plane, sometimes somewhat umbonate, isabelline tinted with rose, resembling the color of some species of *Gomphidius*, the umbo slightly darker, honey-yellow to light-clay-colored in herbarium specimens, slimy-viscid, glabrous; lamellae adnate or slightly sinuate, ventricose, medium-close or slightly subdistant, becoming fulvous, the edges white-crenate; veil forming a large erect or pendent, superior or median, persistent annulus, pure-white on the lower side, brown on the upper side from the spores and striate from the lamellae; stipe central, equal, usually heavily white-floccose just below the annulus, pruinose or slightly floccose above, becoming subglabrous and rarely yellowish toward the base, solid or hollow, 5–8 cm. long, 4–10 mm. thick; spores ovoid to narrow-ellipsoid, smooth, slightly apiculate at one end, 8–10 × 4.5–5.5 μ; cystidia abundant, not projecting conspicuously, small, hyaline with a rounded conspicuous dark-staining body at the apex, sometimes pointed, but more often obtuse, 30–35 × 7.5–9 μ.

TYPE LOCALITY: Seattle, Washington.
HABITAT: On the ground in woods.
DISTRIBUTION: Washington and Oregon.

16. **Pholiota trachyspora** Clements, Crypt. Form. Colo. *373.* 1907.

Pileus 2.5–6 cm. broad, convex or plane, deep-golden- or coffee-brown to dark-melleous, entirely covered with floccose fibrils of the same color matted or collected into squamules, particularly at the center of the pileus, dry; lamellae adnate to adnexed, deep-brown, medium-close, 3–6 mm. broad; veil forming a persistent or evanescent, superior annulus; stipe central, equal, fibrillose, umber-brown, 4–8 cm. long, 4–10 mm. thick; spores broadly ovoid or subglobose, dark under the microscope, decidedly rough-walled, 7–9 × 5–6 μ; cystidia none.

TYPE LOCALITY: Sugar Loaf Park, Colorado.
HABITAT: On the ground in woods.
DISTRIBUTION: Known only from the type locality.

17. **Pholiota anomala** Peck, Bull. Torrey Club **22**: 202. 1895.

Pileus 1.5–2.5 cm. broad, at first hemispheric or subconic, then convex, broccoli-brown when moist, pale-yellow or cream-colored when dry, warm-buff in dried plants, hygrophanous, glabrous; lamellae adnate or decurrent, medium-close or slightly distant, 3–4 mm. broad, pale becoming brownish-ferruginous, ochraceous-orange to cinnamon in dried plants; veil forming a slight, finally evanescent annulus; stipe central, equal, fibrillose or glabrous, whitish or brownish, hollow with irregular transverse partitions or these filled with a cottony tomentum, 3–6 cm. long, 2–6 mm. thick; spores oblong-ellipsoid, smooth, very dilutely colored, 7.5–10 × 4–5 μ;

cystidia present, inconspicuous, or so rare as to pass unnoticed, clavate and attenuate sometimes to a long whip-like point that projects 10–15 μ beyond the basidia, 40–50 × 5–7 μ.

TYPE LOCALITY: Pasadena, California.
HABITAT: On sticks and leaves on the ground.
DISTRIBUTION: Known only from the type locality.

18. **Pholiota duroides** Peck, Bull. N. Y. State Mus. 122: 148. 1908.

Pileus 3.5–9 cm. broad, convex becoming nearly plane, dry or moist but not hygrophanous, creamy-white to ochraceous-buff, chamois, or cinnamon-buff or nearly ochraceous-orange, retaining these colors on drying, glabrous or slightly appressed-squamose or with spot-like scales or depressions in the center, even on the margin; context white, with a mild taste; lamellae adnexed or sinuate-adnate, sometimes with a decurrent tooth, close, narrow, 2–5 mm. broad, whitish becoming brown or rusty-brown, with white-crenulate edges, cinnamon-buff or snuff-brown when mature; veil forming a superior, white, membranous, pendent or rolled, subpersistent annulus, often striate on the upper side; stipe central, equal or enlarged below, glabrous, or at times fibrillose-scaly below, whitish, stuffed or hollow, 3–10 cm. long, 4–15 mm. thick; spores ellipsoid or ovoid, smooth, 4–6 × 3–4.5 μ; cystidia present, inconspicuous, pointed, scarcely projecting, 8.5–10 μ in diameter.

TYPE LOCALITY: Syracuse, New York.
HABITAT: On the ground in waste places, especially in open woods.
DISTRIBUTION: Massachusetts and New York to Virginia and Tennessee.

19. **Pholiota Johnsoniana** (Peck) Atk. Stud. Am. Fungi 153. 1900.

Agaricus Johnsonianus Peck, Ann. Rep. N. Y. State Cab. **23**: 98. 1872.
Stropharia Johnsoniana Peck, Ann. Rep. N. Y. State Mus. **41**: 84. 1888.

Pileus 3–10 cm. broad, convex or nearly plane, usually thick at the center and thin on the margin, yellowish or ochraceous, or yellow in the center and white on the margin, more or less cinnamon-buff in dried specimens, glabrous or at times with small appressed squamules in the center, dry, thin and sometimes striatulate on the margin; context white, with agreeable taste; lamellae adnate or sinuate-adnate, close, 2–5 mm. broad, whitish then rusty-brown, snuff-brown to bister in dried specimens; veil forming a thick, white, persistent, cottony roll on the stipe; stipe central, equal, glabrous, light-colored, solid, slightly striate at the top, 7–10 cm. long, 0.8–1.5 cm. thick; spores ovoid or ellipsoid, smooth, 5–8.5 × 3–4 μ; cystidia scarcely noteworthy in some plants and quite conspicuous in others, some imbedded and blunt, others projecting and usually pointed.

TYPE LOCALITY: Knowersville, New York.
HABITAT: On grassy ground in pastures or in leaf mold in woods in late summer.
DISTRIBUTION: Connecticut to North Carolina and westward to Michigan.
ILLUSTRATIONS: Atk. Stud. Am. Fungi *pl. 44;* ed. 2. *pl. 49;* Ann. Rep. N. Y. State Cab. **23**: *pl. 3, f. 4–6;* Mycologia **7**: *pl. 163, f. 10.*

20. **Pholiota terrestris** Overholts, sp. nov.

Pileus 1–3 cm. broad, convex, uniform sayal-brown to cinnamon-brown in dried plants, dry, squamulose with appressed dark-colored, fibrillose scales, or fibrillose only on the margin; lamellae adnate or slightly decurrent, medium-close, 2–4 mm. broad, bright-cinnamon; veil ample, membranous, not forming a distinct annulus but sometimes adhering considerably to the margin of the pileus; stipe central, equal, pallid above, brown below, floccose at the apex, distinctly scaly below the sheathing veil-remnants on the stipe, 3–6 cm. long, 2–5 mm. thick; spores oblong-ellipsoid, smooth, 5.5–6.5 × 3.5–4.5 μ; cystidia of several inconspicuous types, none projecting strongly, some brown or with a brown mass within.

Type collected on a lawn at Corvallis, Oregon, November 11, 1915, *H. C. Gilbert* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

21. **Pholiota erinaceella** Peck, Bull. N. Y. State Mus. 122: 152. 1908.

Agaricus detersibilis Peck, Ann. Rep. N. Y. State Mus. **28**: 49. 1876. Not *A. detersibilis* Berk. & Curt. 1853.
Agaricus erinaceellus Peck, Ann. Rep. N. Y. State Mus. **30**: 70. 1878.

Pileus 0.5–2.5 cm. broad, hemispheric, then convex or nearly plane, tawny-brown, not changing color in drying, dry, densely covered with minute erect pyramidal, spine-like, or granular tawny scales; lamellae adnexed or adnate, medium-close, or subdistant when young, 1–2 mm. broad, pallid then cinnamon-brown; veil forming a slight, superior, floccose, evanescent annulus; stipe central, equal, tawny, with crowded, erect, floccose scales or granules below the annulus, smooth above, stuffed or hollow, 1.5–2.5 cm. long, 1–1.5 mm. thick; spores ellipsoid or naviculoid, smooth, very dilute-brown under the microscope, 7–8 × 4–5 μ; cystidia none on the sides but protruding abundantly from the edges of the lamellae.

TYPE LOCALITY: Lake Pleasant, New York.
HABITAT: On dead wood of deciduous trees.
DISTRIBUTION: New York, Michigan, and Missouri.
ILLUSTRATION: Trans. Wisc. Acad. **17**: *pl. 51.*

22. **Pholiota muricata** (Fries) Quél. Champ. Jura Vosg. 231. 1872.

Agaricus muricatus Fries, Obs. Myc. **2**: 12. 1818.

Pileus 1–3 cm. broad, convex to plane, obtuse or often slightly umbilicate-depressed, golden-brown or tawny-yellowish when fresh, brown or cinnamon-brown in dried plants, covered with a dense cuticle of short tawny fibrils or fibrillose-tufted scales, or granulose-squarrose at the center, dry; context thin, yellowish, with a mild odor and no taste; lamellae sinuate-adnate, often nearly free in aging, medium-close or slightly distant, light-yellow then cinnamon-brown or rusty-brown, the edges white-crenate, 3–4 mm. broad; veil forming an indistinct, superior, evanescent annulus; stipe central, equal, yellowish but with few, rusty-brown, fibrillose, suberect scales or becoming nearly glabrous, stuffed then hollow, 3–7 cm. long, 2–5 mm. thick, sometimes with a bright-yellow mycelium at the base; spores ellipsoid, smooth, 6–8 × 3.5–4 μ; cystidia none.

TYPE LOCALITY: Europe.
HABITAT: On rotting logs of deciduous trees.
DISTRIBUTION: Michigan and Illinois; also in Europe.
ILLUSTRATION: Trans. Wisc. Acad. **17**: *pl. 52, 53.*

23. **Pholiota curvipes** (Fries) Quél. Champ. Jura Vosg. 230. 1872.

Agaricus curvipes Fries, Epicr. Myc. 168. 1838.

Pileus 2–5 cm. broad, convex to plane, ochraceous-orange, more tawny with age and in herbarium specimens, at first innately floccose or silky-floccose, on aging breaking up into small fibrillose scales, even, dry, even on the margin; context yellow, thin, with no odor and a mild taste; lamellae adnate, medium-close to slightly distant, bright-ochraceous-orange when mature and in dried specimens, the edges white, conspicuously floccose-crenate, 3–6 mm. broad; veil forming a superior, soon evanescent, radiate-floccose annulus, or annulus none; stipe central, equal or tapering upward, ochraceous-orange or ochraceous-tawny, clear-yellow at the apex, decidedly floccose-fibrillose, hollow, 2.5 cm. long, 2–5 mm. thick; spores ellipsoid or oblong-ellipsoid, smooth, 7–8.5 × 4–5 μ; cystidia none.

TYPE LOCALITY: Europe.
HABITAT: On dead wood of deciduous trees.
DISTRIBUTION: Maine, New York, and Michigan; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 370* (*398*) *B;* Fries, Ic. Hymen. *pl. 104, f. 3.*

24. **Pholiota aeruginosa** Peck, Ann. Rep. N. Y. State Mus. 43: 81 (35). 1890.

Flammula viridans Murrill, Mycologia **4**: 262. 1912.

Pileus 2–10 cm. broad, convex, greenish becoming tinged with yellow or brown, drab to cinnamon or ochraceous-buff in dried specimens, dry, at first glabrous, usually soon more or less areolate with each areola surmounted by one to three fibrillose scales, or sometimes completely squamulose without areolae; context with a green tinge, yellowish in dried plants;

lamellae adnate or sinuate-adnate, easily separating, 3–7 mm. broad, pale-ochraceous when young, becoming ochraceous-orange or apricot-buff on drying; veil leaving only a slight lacerated annulus or entirely evanescent; stipe central or excentric, equal or nearly so, glabrous or slightly fibrillose, sometimes sulcate-striate, colored like the pileus, solid, 3–8 cm. long, 4–10 mm. thick; spores ellipsoid or elliptic, slightly echinulate when mature, 6–7.5 × 3.5–4.5 μ; cystidia none.

TYPE LOCALITY: Trexlertown, Pennsylvania.
HABITAT: On decaying wood, probably mostly of coniferous trees.
DISTRIBUTION: New York and Pennsylvania, and westward to Arkansas, Idaho, and Washington.

25. **Pholiota luteofolia** (Peck) Sacc. Syll. Fung. 5: 756. 1887.

Agaricus luteofolius Peck, Ann. Rep. N. Y. State Mus. 27: 94. 1875.

Pileus 2–6 cm. broad, convex, very young specimens dark-red or reddish-brown, becoming pinkish-red or yellowish-red when mature, ochraceous-buff or ochraceous-tawny in dried plants, dry, appressed-fibrillose-squamulose and sometimes areolate in the center, fibrillose on the margin; context fleshy, thin, typically lavender in fresh plants, bitter; lamellae adnate or uncinate, sometimes becoming sinuate-adnate, medium-close or somewhat distant, 3–8 mm. broad, yellow becoming bright-ferruginous, mostly ochraceous-buff or ochraceous-orange in dried specimens; veil forming a slight, fugacious, spore-stained annulus; stipe central or somewhat excentric, equal or enlarged downward, concolorous with the pileus, fibrillose, solid, 3–9 cm. long, 3–10 mm. thick; spores ellipsoid to elliptic, slightly rough, 6–9.5 × 3.5–4.5 μ; cystidia none or not noteworthy.

TYPE LOCALITY: Forestburgh, New York.
HABITAT: Dead wood of deciduous trees.
DISTRIBUTION: New York, Ohio, Illinois, and Missouri.
ILLUSTRATION: Trans. Wisc. Acad. 17: *pl. 48*.

26. **Pholiota cerasina** (Peck) Sacc. Syll. Fung. 5: 744. 1887.

Agaricus cerasinus Peck, Bull. Buffalo Soc. Nat. Sci. 1: 50. 1873.

Plants cespitose, 5–12 cm. broad, convex to plane, cinnamon-colored to tawny, perhaps lighter at times, somewhat hygrophanous, glabrous or nearly so, even on the margin; context fleshy, rather thin, with a bitter taste and an amygdaline odor that is best noticed in young plants; lamellae medium-close or slightly distant, sinuate to adnate or slightly decurrent, yellow, becoming cinnamon or ferruginous, finally pruinose from the spores, 5–12 mm. broad; veil present, forming an early evanescent spore-stained annulus; stipe central or more often excentric, equal or enlarged below, concolorous with the pileus, fibrillose at least at the apex, solid or stuffed, 5–15 cm. long, 5–12 mm. thick; spores elliptic to ovoid, slightly roughened, brown, 6–9 × 4.5–5.5 μ; cystidia none.

TYPE LOCALITY: Sterling, New York.
HABITAT: On dead wood of deciduous trees.
DISTRIBUTION: Maine, Vermont, and New York.

27. **Pholiota spectabilis** (Weinm.) Gill. Champ. Fr. 443. 1876.

Agaricus spectabilis Weinm.; Fries, Elench. Fung. 1: 28. 1828.
Pholiota lutea Peck, Ann. Rep. N. Y. State Mus. 51: 288. 1898.
Pholiota ventricosa Earle, Bull. N. Y. Bot. Gard. 2: 341. 1902.

Pileus 4–15 cm. broad, convex becoming nearly plane, buff-yellow to apricot-orange or zinc-orange, becoming at times slightly more brownish (tawny) in dried plants, dry or moist, finely silky, or in some very young plants practically glabrous at times, to distinctly fibrillose or rivulose or in mature plants squamulose, even on the margin; context yellow, with a bitter or amygdaline taste; lamellae adnexed to adnate or with decurrent teeth or lines, medium-close, 3–8 mm. broad, yellow becoming ferruginous, yellow-ochre to ochraceous-orange or tawny in dried specimens; veil forming a distinct, superior or apical, spore-stained, persistent or subpersistent annulus, sometimes striate on the upper side; stipe central or nearly so, nearly equal to decidedly ventricose or bulbous at the base, yellow or tawny, yellow and floccose above the annulus, fibrillose or furfuraceous below, 3–15 cm. long, 0.5–3 cm thick, solid; spores elliptic, rough, 7.5–9 × 4.5–6 μ; cystidia none

TYPE LOCALITY: Europe.
HABITAT: On stumps and trunks of deciduous or rarely coniferous trees, or growing from buried wood.
DISTRIBUTION: Ontario to Alabama, and westward to the Pacific coast; also in Europe.
ILLUSTRATIONS: G. Bernard, Champ. Rochelle *pl. 55, f. 1.* Cooke, Brit. Fungi *pl. 352 (394);* Fries, Ic. Hymen. *pl. 102;* Gill. Champ. Fr. *pl. 299 (529);* Trans. Wisc. Acad. **17**: *pl. 44, 50;* C. H. Kauffman, Agar. Mich. *pl. 61;* Mycologia **1**: *pl. 7, f. 4.*

28. **Pholiota Schraderi** (Peck) Overholts.

Stropharia Schraderi Peck, Bull. Torrey Club **32**: 80. 1905.

Pileus 5–8 cm. broad, convex or nearly plane, pallid when young, ochraceous-buff when mature, dry, fibrillose, squamulose, or rimose-squamulose on the disk; context white, with a taste of radishes; lamellae adnate, close, thin, whitish then brown; veil forming a small, lacerate, white, sometimes evanescent annulus; stipe central, subequal, squamulose and concolorous with the pileus below, white and mealy above, solid, 2–4 cm. long, 8–12 mm. thick; spores ovoid, not apiculate, smooth, 6–8 (–9) × 4–6 μ; cystidia rather abundant, hyaline, fusoid, projecting rather prominently; also irregular organs as though post-mature basidia imbedded in the hymenium.

TYPE LOCALITY: Washington, District of Columbia.
HABITAT: In sandy soil about stumps.
DISTRIBUTION: Known only from the type locality.

29. **Pholiota rigidipes** Peck, Bull. N. Y. State Mus. 157: 31. 1912.

Pileus 4–8 cm. broad, broadly convex, sometimes slightly or broadly umbonate, pale-yellow or buff, buff-yellow to ochraceous-buff or ochraceous-orange in dried plants, squamulose with scattered, appressed, slightly darker-colored, fibrillose scales, more prominent in the center though never conspicuous and partially disappearing in mature plants; context white, tinged yellow next to the lamellae, distinctly yellow in dried plants, with a mild taste; lamellae sinuate-adnate or adnate, medium-close, 3–7 mm. broad, cinnamon or ochraceous-tawny and retaining these colors in drying; veil forming a slight, often evanescent annulus; stipe central, equal, pallid or yellowish and fibrillose-squamulose or becoming nearly glabrous below the annulus, white and pruinose at the apex, stuffed or hollow, 5–9 cm. long, 4-6 mm. thick; spores oblong or oblong-ellipsoid, smooth, 6.5–8.5 × 3.5–4.5 μ; cystidia present, not always abundant, brown, some projecting, 25–40 × 6–8 μ.

TYPE LOCALITY: Constableville, New York.
HABITAT: On the ground in woods, probably always on buried or exposed wood.
DISTRIBUTION: New York, New Jersey, and Missouri.

30. **Pholiota oregonensis** Murrill, Mycologia 4: 262. 1912.

Hypodendrum oregonense Murrill, Mycologia **4**: 261. 1912.

Pileus apparently 5 cm. or broader when mature, convex, obtuse, thick and fleshy, dry, smooth, glabrous, ochraceous-buff to ochraceous-tawny and retaining these colors when dried, strongly incurved on the margin; context thin, cremeous, with an agreeable nutty or amygdaline taste in dried plants; lamellae adnate, medium-distant to distant, yellow or yellowish-brown, becoming darker, strongly interveined, the edges irregular; veil forming a superior, or nearly apical, irregular, yellowish-white annulus; stipe central or excentric, terete or compressed, equal or enlarged upward or downward, yellowish above, fulvous below, with small, scattered, unicolorous, subfloccose, evanescent scales pointing upward, solid, 6–10 cm. long, 8–20 mm. thick; spores ovoid or elliptic, smooth, 7.5–10 × 3–5 μ; cystidia none or not noteworthy.

TYPE LOCALITY: Glen Brook, Oregon.
HABITAT: On decayed spot in trunk of living willow.
DISTRIBUTION: Known only from the type locality.

31. **Pholiota mutabilis** (Schaeff.) Quél. Champ, Jura Vosg. 94. 1872.

Agaricus mutabilis Schaeff. Fung. Bavar. **4**: Ind. 6. 1774.

Pileus 1.5–3 cm. broad, convex to plane, cinnamon when moist, paler when dry, ochraceous-buff in dried plants, hygrophanous, glabrous; lamellae adnate or slightly decurrent, medium-

close, 2–4 mm. broad, pallid then cinnamon; veil forming a white or dark, superior, evanescent or persistent annulus; stipe central, equal, concolorous with the pileus, decidedly scaly below the ring, pruinose above, stuffed then hollow, 3–7 cm. long, 3–5 mm. thick; spores ovoid or elliptic, slightly truncate at one end, smooth, 6–7.5 × 4–5 μ; cystidia none.

TYPE LOCALITY: Europe.
HABITAT: On stumps and logs.
DISTRIBUTION: Ohio and Colorado; also in Europe.
ILLUSTRATIONS: Batsch, Elench. Fung. Contin. *pl. 38, f. 208;* Bres. Funghi Mang. *pl. 51;* Cooke, Brit. Fungi *pl. 355* (*402*); Fries, Sv. Aetl. Svamp. *pl. 47;* Lanzi, Funghi Mang. *pl. 76, f. 3;* Schaeff. Fung. Bavar. *pl. 9.*

32. Pholiota confragosa (Fries) Sacc. Syll. Fung. 5: 758. 1887.

Agaricus confragosus Fries, Epicr. Myc. 169. 1838.

Pileus 1–2.5 cm. broad, convex to nearly plane, cinnamon-rufous when moist, tawny when dry, nearly uniform warm-buff or cinnamon-buff in dried plants, densely and finely floccose-squamulose or floccose-fibrillose under a lens, on aging becoming somewhat denuded at times but never entirely so, hygrophanous, striate on the margin when moist; context fleshy-fragile, pallid, with no marked odor or taste; lamellae adnate or slightly decurrent, sometimes white-crenulate on the edges, medium-close, 1–3 mm. broad, rufous to cinnamon-brown; veil forming a superior, membranous annulus, erect and subrigid for a time, finally more annulate and in rare cases all but disappearing; stipe central, equal or enlarged just at the base, concolorous with the pileus or paler, markedly fibrillose below the annulus and sometimes white-tomentose or strigose at the base, floccose and sometimes striate above, 2–5 cm. long, 1.5–5 mm. thick; spores ellipsoid or broadly ellipsoid, smooth, not truncate, dilutely colored under the microscope, 6–8 × 4–5 μ; cystidia none except for radiating tufts on the edges of the lamellae.

TYPE LOCALITY: Europe.
HABITAT: Rotten mossy trunks of deciduous trees.
DISTRIBUTION: New England, New York, and Michigan; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 105, f. 2;* Trans. Wisc. Acad. 17: *pl. 41, f. D, E.*

33. Pholiota furcata Overholts, sp. nov.

Pileus 1–3 cm. broad, convex to plane, somewhat gibbous at times, reddish-brown when moist, ochraceous when dry, cinnamon-buff in dried plants, hygrophanous, glabrous, even on the margin and at first incurved; context concolorous, with no odor; lamellae slightly decurrent, close, ochraceous to dull-cinnamon, 2–3 mm. broad, conspicuously forked and connected by veins so as to appear somewhat porous; veil forming a superior, distinct but somewhat evanescent annulus; stipe central, equal, dark-watery-brown, floccose-pruinose above the annulus, white-fibrillose below, solid or spongy, 1.5–2.5 cm. long, 2–3 mm. thick; spores ovoid or ellipsoid, somewhat rough at maturity, 7.5–9.5 × 4.5–6 μ; cystidia present and fairly abundant, hyaline, flask-shaped, ending in a long projecting tip.

Type collected on old mossy logs in Van Cortlandt Park, New York, November 3, 1903, *F. S. Earle 1881* (herb. N. Y. Bot. Gard.).

34. Pholiota marginella Peck, Ann. Rep. N. Y. State Mus. 51: 289. 1898.

Pileus 1–4 cm. broad, convex becoming nearly plane, buckthorn-brown or yellowish-red when young or moist, whitish or yellowish-buff when dry, warm-buff or cinnamon-buff in dried plants, hygrophanous or at times subviscid, glabrous, striatulate on the margin when young, and slightly silky with whitish fibrils; lamellae sinuate-adnexed or sinuate-uncinate, easily separating, medium-close, 1–4 mm. broad, minutely eroded on the edges, whitish becoming dark-ferruginous; veil forming a slight or well-developed fugacious annulus; stipe central, equal, fibrillose below, pruinose above the annulus, stuffed or hollow, whitish or pallid, sometimes with a white tomentum at the base, 3–10 cm. long, 1–6 mm. thick; spores ellipsoid or ovoid, smooth, slightly truncate at one end, brown, 6–8 (–9) × 3.5–4.5 μ; cystidia none.

TYPE LOCALITY: North Elba, New York.
HABITAT: Decaying wood or on sawdust piles.
DISTRIBUTION: New Hampshire to New Jersey, and westward to the Pacific coast.
ILLUSTRATION: Ann. Rep. N. Y. State Mus. 51: *pl. B, f. 12–20.*

35. Pholiota marginata (Batsch) Quél. Champ. Jura Vosges 94. 1872.

Agaricus marginatus Batsch, Elench. Fung. 65. 1783.
Agaricus (Naucoria) autumnalis Peck, Ann. Rep. N. Y. State Cab. 23: 92. 1872.
Naucoria autumnalis Sacc. Syll. Fung. 5: 834. 1887.
Pholiota autumnalis Peck, Bull. N. Y. State Mus. 122: 156. 1908.

Pileus 1.5–7 cm. broad, convex to plane or slightly depressed, sometimes somewhat umbilicate, more rarely slightly umbonate, argus-brown, cinnamon-brown, or Sudan-brown when moist, warm-buff to ochraceous-orange when dry, usually of the latter colors in dried plants, hygrophanous, glabrous, usually striatulate on the margin when moist and often extending somewhat beyond the lamellae; context fleshy, thin, concolorous with pileus, with a farinaceous taste and odor; lamellae sinuate-adnate to adnate or slightly decurrent, medium-close to slightly distant, 2–7 mm. broad, light-yellowish-brown to buckthorn-brown; veil forming a fugacious or subpersistent annulus; stipe central, nearly equal or somewhat swollen just at the apex, fibrillose, pruinose at the apex and with a white tomentum at the base, concolorous or lighter than the pileus, hollow, 2–8 cm. long, 2–6 (–10) mm. thick; spores elliptic or ovoid, often smooth when young, with a rough wall when mature, 7–9.5 × 4.5–6 μ; cystidia present, but usually not abundant, flask-shaped with a long apex that projects 15–25 μ, hyaline, 50–80 × 10–15 μ.

TYPE LOCALITY: Europe.
HABITAT: On rotting wood, either exposed or buried, of either deciduous or coniferous trees; often on sawdust.
DISTRIBUTION: Massachusetts to Alabama and westward to Missouri and Minnesota; also in Europe.
ILLUSTRATIONS: Atk. Stud. Am. Fungi *f. 143;* ed. 2. *f. 147;* Cooke, Brit. Fungi *pl. 372 (403);* Hard, Mushr. *f. 215;* Trans. Wisc. Acad. 17: *pl. 54, 55;* Ricken, Blätterp. Deutschl. *pl. 56, f. 7.*

36. Pholiota discolor (Peck) Sacc. Syll. Fung. 5: 744. 1887.

Agaricus discolor Peck, Bull. Buffalo Soc. Nat. Sci. 1: 50. 1873.

Pileus 1–3 (–5) cm. broad, convex, then expanded or slightly depressed, cinnamon-rufous, bright-ochraceous-yellow when dry, cinnamon-buff, ochraceous-orange, or cinnamon in dried plants, hygrophanous, smooth, viscid, striatulate on the margin when moist, even when dry; lamellae adnate or with a decurrent tooth, medium-close or somewhat distant, 1–3 mm. broad, pallid then pale-ferruginous, mikado-brown or russet in dried plants; veil forming a subpersistent, distinct annulus; stipe central, equal, pallid, fibrillose-striate, hollow, 2.5–8 cm. long, 1.5–5 mm. thick; spores elliptic, rough-walled or smooth before maturity, dilute-brown under the microscope, 7–9 × 4–6 μ; cystidia present, projecting, flask-shaped, 40–70 × 10–12 μ.

TYPE LOCALITY: Greig, New York.
HABITAT: On old logs and on rotten wood.
DISTRIBUTION: New York to Alabama and westward to Michigan.
ILLUSTRATION: Trans. Wisc. Acad. 17: *pl. 61, f. B.*

37. Pholiota unicolor (Vahl) Gill. Champ. Fr. 436. 1876.

Agaricus unicolor Vahl, Fl. Dan. 18: 7. 1792.

Pileus 0.5–2 cm. broad, campanulate to conic-campanulate or somewhat convex, often sharply umbonate, cinnamon-buff to ochraceous-buff or ochraceous-orange, herbarium specimens cinnamon to ochraceous-tawny, glabrous, hygrophanous, striate or fluted on the margin; context thin, with a somewhat farinaceous taste; lamellae squarely adnate, often becoming somewhat free with the expansion of the pileus, rather close, subtriangular in shape, more or less tawny or ferruginous; veil forming a persistent, median or superior, upright, funnel-shaped annulus; stipe central, equal, yellowish-brown, decidedly floccose-mealy above the annulus, fibrillose below or the base white-tomentose, hollow, 2.5–5 cm. long, 2–4 mm. thick; spores ovoid or elliptic, smooth or slightly rough when mature, 7.5–10 × 5–6 μ; cystidia rare, projecting, flask-shaped, hyaline, pointed.

TYPE LOCALITY: Europe.
HABITAT: On rotten wood of coniferous or deciduous trees.
DISTRIBUTION: Maine to Alabama; on the Pacific coast and in Mexico; also in Europe.
ILLUSTRATIONS: Bull. Herb. Fr. *pl. 530, f. 2;* Cooke, Brit. Fungi *pl. 356 (404) B;* Fl. Dan. *pl. 1071, f. 1.*

38. **Pholiota acericola** (Peck) Sacc. Fung. 5: 759. 1887.

Agaricus acericola Peck, Bull. Buffalo Soc. Nat. Sci. 1: 50. 1873.

Pileus 2.5–7.5 cm. broad, broadly convex or nearly plane, rarely somewhat umbonate, cream-buff to clay-colored or buckthorn-brown when young and moist, buff-yellow or Naples-yellow when old, frequently somewhat darker at the center than at the margin, not strongly hygrophanous but changing color from young to old condition, clay-colored to tawny in herbarium specimens, glabrous, rugosely reticulated or corrugated, even at the margin and sometimes upturned; context thin, white, with a farinaceous taste and odor; lamellae sinuate-adnate or with a small decurrent tooth, medium-close, 2.5–7 mm. broad, grayish becoming brownish-ferruginous or at some stages with a purplish cast, the edges floccose-crenulate; veil forming a large persistent, or rarely evanescent, membranous, superior, or in some instances nearly median, deflexed, white annulus, sometimes of a rich-brown color and striate on the upper side; stipe central, equal or thickened at the base, fibrillose-striate to nearly glabrous, white or whitish, stuffed or hollow, typically with more or less of a white tomentum and strings of mycelium at the base, 6–11 cm. long, 4–15 mm. thick; spores ovoid or ovoid-elliptic, with a truncate apex, smooth, dull-brown, 8.5–10.5 × 5–6 μ; cystidia present but not abundant, flask-shaped or broadly fusoid but only the tips projecting so not conspicuous, the tips rarely two- to three-forked, 15–20 μ in diameter below.

TYPE LOCALITY: North Elba, New York.
HABITAT: Mossy rotted trunks of deciduous trees, perhaps also on coniferous wood; rarely on the ground around rotting logs or on leaf-mold.
DISTRIBUTION: Connecticut to North Carolina and Alabama, and westward to Ohio, Colorado, and California.

39. **Pholiota Aegerita** Briganti, Quél. Champ. Jura Vosg. 229. 1872.

Agaricus Aegerita Briganti, Funghi Litogr. Napol. *pl. 1.* 1824.

Pileus 3–13 cm. broad, subhemispheric to convex and then expanded, avellaneous to chamois, cinnamon in dried plants, dry, glabrous, rugulose on the margin when young; context white, firm; lamellae adnate or becoming nearly free, sometimes slightly decurrent in lines on the stipe, close or medium-close, 4–8 mm. broad, dark-brown; veil forming a median-superior, persistent, conspicuous annulus; stipe central, nearly equal, brownish, more or less white-fibrillose, solid, 4–15 cm. long, 4–10 mm. thick; spores ovoid or more often elongate-ovoid or elongate-elliptic, smooth, 9–11 × 4.5–6 μ; cystidia present but not conspicuous, projecting somewhat, hyaline, 6–10 μ in diameter, some pointed.

TYPE LOCALITY: Europe.
HABITAT: On recently felled trunks or from wounds in deciduous trees.
DISTRIBUTION: Michigan; also in Europe.
ILLUSTRATIONS: Bres. Funghi Mang. *pl. 50;* Cooke, Brit. Fungi *pl. 453* (*386*); Paulet & Lév. Ic. Champ. *pl. 145* (as *Hypodendrum populneum*).

40. **Pholiota destruens** (Brondeau) Gill. Champ. Fr. 442. 1876.

Agaricus destruens Brondeau, Pl. Crypt. Agen. *pl. 6.* 1828–30.
?*Agaricus heteroclitus* Fries, Obs. Myc. 2: 223. 1818.
?*Agaricus comosus* Fries, Epicr. Myc. 165. 1838.

Pileus 6–15 cm. broad, heavy-fleshy, convex to expanded, sometimes umbonate, pallid or more often cervine or wood-brown, the cuticle sometimes weathering off to a white color, subviscid, with scattered, large, white, floccose patches or squamules that are rather adnate and sometimes imbricate and may disappear, frequently rivulose on the margin and with white fibrils or fibrillose scales; context white, thick, with no marked odor and a mild or saponaceous taste; lamellae adnate to sinuate, close or crowded, at first white, finally deep-cinnamon, 4–14 mm. broad; veil white, soon breaking, forming an evanescent, white, floccose-tomentose annulus; stipe central or excentric, equal or enlarged downward, white-floccose-tomentose above the annulus, with a few large white squamules or indistinctly and broadly peronate from the veil fibers, white to wood-brown, 5–15 cm. long, 1.5–6 cm. thick, solid; spores ovoid or ellipsoid, smooth, 7.5–9.5 × 4–5 μ; cystidia none.

TYPE LOCALITY: Europe.
HABITAT: On stumps and trunks of *Populus* and other deciduous trees.
DISTRIBUTION: New York and westward to the Pacific coast; also in Europe.
ILLUSTRATIONS: Bres. Fungi Trid. *pl. 84;* Hard, Mushr. *f. 214;* Kalchbr. Ic. Hymen. Hung. *pl. 13, f. 1* (as *P. comosa*); Trans. Wisc. Acad. 17: *pl. 45–47.*

41. **Pholiota bryophila** Murrill, Mycologia 5: 33. 1913.

Pileus 0.5–2 cm. broad, plane or slightly depressed, isabelline, smooth, dry, glabrous, regular on the margin, appearing somewhat obtuse because of the broad lamellae; lamellae adnate, slightly distant, ventricose, 2–3 mm. broad, yellowish to brown; veil forming a white, conspicuous, persistent annulus, attached slightly above the middle of the stipe; stipe central, terete, equal, often curved, smooth, glabrous, subconcolorous, slender and rather tough, 2 cm. long, 1–2 mm. thick; spores ovoid to ellipsoid, rough, 8–9.5 × 5–6 μ; cystidia none.

TYPE LOCALITY: Orizaba, Mexico.
HABITAT: Among moss on a moist limestone cliff.
DISTRIBUTION: Known only from the type locality.

42. **Pholiota Brittoniae** Murrill, Mycologia 5: 35. 1913.

Pileus reaching 10 cm. broad, large and fleshy, cespitose, convex to expanded, becoming depressed at the center, fulvous, becoming fuliginous or blackish with age, dry, imbricate-fibrillose to subglabrous, entire, concolorous, and strongly inflexed on the margin on drying; lamellae sinuate with a decurrent tooth reaching as far as the annulus, seceding with age, broad, irregular in shape, subdistant, ferruginous, darker with age; veil forming an ample, membranous, ferruginous, persistent annulus fixed near the apex of the stipe; stipe enlarged below, concolorous, blackening with age, longitudinally furrowed, hollow, reaching 10 cm. long and 1–3 cm. thick; spores broadly ellipsoid to subglobose, roughened with an irregular sculpturing, ferruginous, 8–10 μ; cystidia none.

TYPE LOCALITY: Cinchona, Jamaica.
HABITAT: At the base of living or dead trees.
DISTRIBUTION: Known only from the type locality.

43. **Pholiota cubensis** Earle, Inf. An. Estac. Centr. Agron. Cuba 1: 242. 1906.

Pileus 3–12 cm. broad, fleshy, firm, expanded, scattered or gregarious, dark-tan, "tawny" or "cinnamon brown" in herbarium specimens, dry, floccose-scaly on the disk, areolate but not striate on the margin; context yellowish, mild but somewhat unpleasant; lamellae sinuate with an adnate tooth, crowded, 3–7 mm. broad, dark-cinnamon; stipe central, terete, slightly enlarged at the base, floccose above, glabrous below, pale-yellow, solid, firm, 3–6 cm. long, 3–10 mm. thick; spores ovoid or ellipsoid, smooth, 6–7 × 3–4.5 μ; cystidia present, not conspicuous, projecting slightly.

TYPE LOCALITY: Santiago de las Vegas, Cuba.
HABITAT: On the ground under a building; also in open fields.
DISTRIBUTION: Cuba and Grenada.

44. **Pholiota martinicensis** Pat. in Duss, Énum. Champ. Guad. 54. 1903.

Pileus 8–15 mm. broad, convex to expanded, reddish-brown, darker at the center, with scattered erect reddish squamules; lamellae adnate, brown, unequal; veil forming a median, whitish, membranous, erect, persistent annulus; stipe central, slender, 2–3 cm. long, smooth above, furfuraceous-squamulose at the base; spores ovoid, smooth, 6 × 4 μ.

TYPE LOCALITY: Base of Mt. Pelée, Martinique.
HABITAT: Scattered or gregarious on dead bark of *Mangifera*, in woods.
DISTRIBUTION: Known only from the type locality.

45. **Pholiota cinchonensis** Murrill, Mycologia 5: 33. 1913.

Pileus 1.5 cm. broad, thin, becoming plane, ochroleucous to ochraceous, dry, granular-tomentose, striate, straight and even on the margin; lamellae adnate, with a decurrent tooth, isabelline, 1–2 mm. broad; veil forming a white, nearly central, sometimes ample annulus; stipe central, terete, equal, paler than the pileus, glabrous or nearly so, sometimes with fibrils on the lower part, attached at the base to a white mat of mycelium, 1.5 cm. long, 1 mm. thick; spores rather broadly ellipsoid, smooth, 7–8 × 4–5 μ; cystidia none.

TYPE LOCALITY: Cinchona, Jamaica.
HABITAT: On a dead stick in woods.
DISTRIBUTION: Known only from the type locality.

46. **Pholiota avellanea** Murrill, Mycologia 5: 32. 1913.

Pileus about 3 mm. broad and 3 mm. thick, nearly plane, solitary, pale-avellaneous, darker at the center, dull, glabrous, smooth, thin and slightly decurved on the margin; lamellae adnate, close, about 2 mm. broad, avellaneous when looked at perpendicularly; veil forming an ample, white, superior, persistent annulus; stipe central, terete, enlarged below, crooked, white at the apex, hygrophanous and longitudinally streaked below, 5 cm. long, 4 mm. thick; spores ellipsoid, truncate at one end, 8.5–10 × 4.5–5.5 μ; cystidia rather numerous, flask-shaped, projecting conspicuously.

TYPE LOCALITY: Morce's Gap, Jamaica.
HABITAT: On the ground.
DISTRIBUTION: Known only from the type locality.

47. **Pholiota Broadwayi** Murrill, Mycologia 5: 32. 1913.

Pileus 1–3 cm. broad, thin, convex to expanded, solitary, nearly white to pale-isabelline, slightly darker at the center, glabrous, moist or slightly viscid, thin, concolorous, and entire on the margin; lamellae adnate or adnexed, crowded, slightly ventricose, 2–3 mm. broad, pale-fulvous; stipe central, terete, equal, concolorous, glabrous, hollow, 4–7 cm. long, 2–3 mm. thick; veil forming a superior, membranous, evanescent annulus; spores ovoid with a truncate base, smooth, 12–14 × 8–9 μ; cystidia present but rare, enlarged at the base, with a tapering projecting tip, hyaline.

TYPE LOCALITY: Grenada, West Indies.
HABITAT: On the ground.
DISTRIBUTION: Known only from the type locality.

48. **Pholiota Musae** (Earle) Murrill, Mycologia 5: 34. 1913.

Pholiotina Musae Earle, Inf. An. Estac. Centr. Agron. Cuba 1: 241. 1906.

Pileus 1–4 cm. broad, convex to expanded, pale-fuscous to tan, hygrophanous, striate on the margin and at length upturned; lamellae adnexed, crowded, becoming ventricose, subconcolorous to darker; veil soon evanescent, sometimes no ring formed; stipe central, equal, glabrous, shining, white, hollow, 4–6 cm. long, 3–6 mm. thick; spores ellipsoid or narrow-ellipsoid, nearly hyaline, smooth, 17–19 × 7–9 μ; cystidia none.

TYPE LOCALITY: Santiago de las Vegas, Cuba.
HABITAT: On dead banana stalks.
DISTRIBUTION: Known only from the type locality.

DOUBTFUL AND EXCLUDED SPECIES

Pholiota Aegerita Briganti. Harper's plants so determined by Atkinson seem to belong better under *P. aeruginosa* Peck. Hard, if his description is drawn from the actual specimens, may have had the plants. The species is included in this paper on the basis of Kauffman's report.

Pholiota appendiculata Peck, Bull. N. Y. State Mus. 94: 33. 1905. Equals *P. ornella* Peck, which is referable to *Flammula polychroa* Berk.

Pholiota aurea (Schaeff.) Gill. Champ. Fr. 435. 1876. *P. spectabilis* seems to cover all American material that might otherwise be referred to this species.

Pholiota caperata (Pers.) Gill. Champ. Fr. 435. 1876. See *Rozites*.

Pholiota dactyliota (Berk. & Mont.) Sacc. Syll. Fung. 5: 750. 1887. (*Agaricus dactyliotus* Berk. & Mont.; Mont. Syll. Crypt. 115. 1856.) Described from plants collected in Ohio by Sullivant, and said to be similar to *P. squarrosa*.

Pholiota dura (Bolt.) Quél. Champ. Jura Vosg. 91. 1872. (*Agaricus durus* Bolt. Hist. Fung. *pl. 67, f. 1.* 1788.) A species reported in every list of fleshy fungi issued in America. All collections examined belong as well under *P. vermiflua* Peck which will probably be found to be a synonym of *P. dura*. Europeans are far from an agreement as to the limits of the species and Peck's name may be used for the present.

Pholiota erebia (Fries) Gill. Champ. Fr. 432. 1876. Reported several times from America. All specimens I have seen are referable to *P. aggericola* Peck or *P. ombrophila* Fries. European workers are not in accord as to the microscopic characters of the plant, though probably *P. aggericola* will eventually be retired in favor of *P. erebia*.

COMPLETED VOLUME

9: i–iv, 1–542. (Agaricales:) Polyporaceae (pars), Boletaceae, Agaricaceae (pars). Complete in 7 parts.

PARTS OF VOLUMES PREVIOUSLY PUBLISHED

3^{1}: 1–88. Hypocreales: Nectriaceae, Hypocreaceae. Fimetariales: Chaetomiaceae, Fimetariaceae.

6^{1}: 1–84. Phyllostictales: Phyllostictaceae (pars).

7^{1}: 1–82. Ustilaginales: Ustilaginaceae, Tilletiaceae. **7^{2}**: 83–160. Uredinales: Coleosporiaceae, Uredinaceae, Aecidiaceae (pars). **7^{3}**: 161–268. **7^{4}**: 269–336. **7^{5}**: 337–404. **7^{6}**: 405–480. **7^{7}**: 481–540. **7^{8}**: 541–604. **7^{9}**: 605–668. Aecidiaceae (pars).

10^{1}: 1–76. **10^{2}**: 77–144. **10^{3}**: 145–226. (Agaricales:) Agaricaceae (pars).

14^{1}: 1–66. Sphaerocarpales: Sphaerocarpaceae, Riellaceae. Marchantiales: Ricciaceae, Corsiniaceae, Targioniaceae, Sauteriaceae, Rebouliaceae, Marchantiaceae.

15^{1}: 1–75. Sphagnales: Sphagnaceae. Andreaeales: Andreaeaceae. Bryales: Archidiaceae, Bruchiaceae, Ditrichaceae, Bryoxyphiaceae, Seligeriaceae. **15^{2}**: 77–166. Dicranaceae, Leucobryaceae.

16^{1}: 1–88. Ophioglossales: Ophioglossaceae. Marattiales: Marattiaceae. Filicales: Osmundaceae, Ceratopteridaceae, Schizaeaceae, Gleicheniaceae, Cyatheaceae (pars).

17^{1}: 1–98. Pandanales: Typhaceae, Sparganiaceae. Naiadales: Zannichelliaceae, Zosteraceae, Cymodoceaceae, Naiadaceae, Lilaeaceae. Alismales: Scheuchzeriaceae, Alismaceae, Butomaceae. Hydrocharitales: Elodeaceae, Hydrocharitaceae. Poales: Poaceae (pars). **17^{2}**: 99–196. **17^{3}**: 197–288. Poaceae (pars).

21^{1}: 1–93. Chenopodiales: Chenopodiaceae. **21^{2}**: 95–169. Amaranthaceae. **21^{3}**: 171–254. Allioniaceae.

22^{1}: 1–80. Rosales: Podostemonaceae, Crassulaceae, Penthoraceae, Parnassiaceae. **22^{2}**: 81–192. Saxifragaceae, Hydrangeaceae, Cunoniaceae, Iteaceae, Pterostemonaceae, Hamamelidaceae, Altingiaceae, Phyllonomaceae. **22^{3}**: 193–292. Grossulariaceae, Platanaceae, Crossosomataceae, Connaraceae, Calycanthaceae, Rosaceae (pars). **22^{4}**: 293–388. **22^{5}**: 389–480. **22^{6}**: 481–560. Rosaceae (pars).

24^{1}: 1–64. **24^{2}**: 65–136. **24^{3}**: 137–200. **24^{4}**: 201–250. (Rosales:) Fabaceae (pars).

25^{1}: 1–88. Geraniales: Geraniaceae, Oxalidaceae, Erythroxylaceae, Linaceae. **25^{2}**: 89–171. Tropaeolaceae, Balsaminaceae, Limnanthaceae, Koeberliniaceae. Zygophyllaceae, Malpighiaceae. **25^{3}**: 173–261. Rutaceae, Surianaceae, Simaroubaceae, Burseraceae. **25^{4}**: 263–326. Meliaceae, Trigoniaceae. Polygalales: Vochyaceae, Polygalaceae (pars). **25^{5}**: 327–383. Polygalaceae (pars), Dichapetalaceae.

29^{1}: 1–102. Ericales: Clethraceae, Monotropaceae, Lennoaceae, Pyrolaceae, Ericaceae.

32^{1}: 1–86. **32^{2}**: 87–158. Rubiales: Rubiaceae (pars).

33^{1}: 1–110. Carduales: Ambrosiaceae, Carduaceae (pars).

34^{1}: 1–80. **34^{2}**: 81–180. **34^{3}**: 181–288. (Carduales:) Carduaceae (pars).

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VOLUME 10 PART 5

NORTH AMERICAN FLORA

(AGARICALES)

AGARICACEAE (pars)

AGARICEAE (pars)

HYPODENDRUM

LEE ORAS OVERHOLTS

CORTINARIUS

CALVIN HENRY KAUFFMAN

PUBLISHED BY

THE NEW YORK BOTANICAL GARDEN

NOVEMBER 21, 1932

ANNOUNCEMENT

North American Flora is designed to present in one work descriptions of all plants growing, independent of cultivation, in North America, here taken to include Greenland, Central America, the Republic of Panama, and the West Indies, except Trinidad, Tobago, and Curaçao and other islands off the north coast of Venezuela, whose flora is essentially South American.

The work will be published in parts at irregular intervals, by the New York Botanical Garden, through the aid of the income of the David Lydig Fund bequeathed by Charles P. Daly.

It is planned to issue parts as rapidly as they can be prepared, the extent of the work making it possible to commence publication at any number of points. The completed work will form a series of volumes with the following sequence:

Volume 1. Myxomycetes, Schizophyta.

Volumes 2 to 10. Fungi.

Volumes 11 to 13. Algae.

Volumes 14 and 15. Bryophyta.

Volume 16. Pteridophyta and Gymnospermae.

Volumes 17 to 19. Monocotyledones.

Volumes 20 to 34. Dicotyledones.

The preparation of the work has been referred by the Scientific Directors of the Garden to a committee consisting of Dr. N. L. Britton, Dr. M. A. Howe, and Dr. J. H. Barnhart.

Dr. Frederick V. Coville, of the United States Department of Agriculture; and Professor William Trelease, of the University of Illinois, have consented to act as an advisory committee.

Each author will be wholly responsible for his own contributions, being restricted only by the general style adopted for the work, which must vary somewhat in the treatment of diverse groups.

The subscription price is fixed at $1.50 for each part; it is expected that four or more parts will be required for each volume. A limited number of separate parts will be sold at $2.00 each. Address:

THE NEW YORK BOTANICAL GARDEN
BRONX PARK
NEW YORK CITY

Pholiota hormophora (Mont.) Sacc. Syll. Fung. **5**: 754. 1887. (*Agaricus hormophorus* Mont. Syll. Crypt. 116. 1856.) Collected by Sullivant in Ohio and described by Montagne. Said to resemble *P. tuberculosa* Fries and is described as having a bulbous enlargement at the base of the stipe.

Pholiota Lucifer (Lasch) Quél. Champ. Jura Vosg. 230. 1872. (*Agaricus Lucifer* Lasch, Linnaea **3**: 408. 1828.) Reported by Kauffman from Michigan and may have to be recognized, but is surely close to *P. limonella* Peck, though described and figured as with a peronate-scaly stipe.

Pholiota luxurians (Fries) Gill. Champ. Fr. 439. 1876. Reported by Harper from the Great Lakes region. The specimen seems to be related to *P. aeruginosa* Peck.

Pholiota mollicula Banning; Peck, Ann. Rep. N. Y. State Mus. **44**: 182 (70). 1891. Originally described from Maryland, growing on the roots of trees.

Pholiota ornella Peck, Bull. N. Y. State Mus. 122: 151. 1908. (*Agaricus ornellus* Peck, Ann. Rep. N. Y. State Mus. **34**: 42. 1883.) Not distinct from *Flammula polychroa* Berk.

Pholiota radicosa (Bull.) Quél. Champ. Jura Vosg. 92. 1872. (*Agaricus radicosus* Bull. Herb. Fr. *pl. 160*. 1783.) Reported from the Pacific coast by Harkness and Moore but I have seen no specimens of this highly characteristic species.

Pholiota rubecula Banning; Peck, Ann. Rep. N. Y. State Mus. **44**: 182 (70). 1891. Has rough spores and otherwise seems to belong close to *P. spectabilis* Fries.

Pholiota sabulosa Peck, Bull. Torrey Club **23**: 414. 1896. Described as growing in sandy soil in Alabama. The spores are rough-walled, 8.5–9.5 × 5–6 μ. Flask-shaped cystidia project from between the basidia. Both of these characters ally the plant to the *P. marginata* complex in which there is already an over-abundance of described species. Specimens in the Underwood Herbarium at New York show the plant to have been growing from humus-charged earth, and it is probably to be regarded as a form of *P. marginata* or *P. discolor*.

Pholiota speciosa Clements, Bot. Surv. Neb. **2**: 41. 1893. The description is inadequate for the recognition of the species. If the spore-measurements (5 × 3.5 μ) are correctly recorded it would fall in the neighborhood of *P. duroides*, with which it seems to have other characters in common.

Pholiota sphaleromorpha (Bull.) Quél. Champ. Jura Vosg. 91. 1872. (*Agaricus sphaleromorphus* Bull. Herb. Fr. *pl. 540*. 1791.) Harper is of the opinion that *P. Howeana* Peck is referable to this species. At all events it is very similar and there are now too many species described with the peculiar truncate spores, the prominent cystidia, and other characters common to this group.

Pholiota subsquarrosa (Fries) Sacc. Syll. Fung. **5**: 750. 1887. Reported by McIlvaine. I have seen no specimens so referable, and McIlvaine records that the plants seem different from the European species.

Pholiota terrigena (Fries) Sacc. Syll. Fung. **5**: 737. 1887. The species has been reported from the United States but I have seen no material that corresponds to specimens from Bresadola. The plants so recorded should be compared with *P. terrestris* Overholts, which has smaller spores and prominent cystidia.

Pholiota villosa (Fries) Sacc. Syll. Fung. **5**: 752. 1887. Specimens so determined by Peck and similar collections from the Pacific coast seem referable to *P. spectabilis*.

75. HYPODENDRUM* Paulet, Traité Champ. *pl. 137*. 1825.

Myxocybe Fayod, Ann. Sci. Nat. VII. 9: 361. 1889.

Plants fleshy, putrescent, bright-colored, yellow to tawny, typically in dense cespitose clusters, xylophilous; pileus squamose or squarrose, usually densely so; lamellae adnexed to slightly decurrent; spores ferruginous or fuscous, smooth; stipe central, fleshy, squarrose or squamose, typically densely so below the annulus, not sheathed; veil present, forming a distinct though often evanescent annulus; typically with brown sterile organs in the hymenium.

Type species, *Hypodendrum squarrosum* Paulet.

* By LEE ORAS OVERHOLTS.

Species of temperate North America.
- Spores 3–6 μ long.
  - Pileus pallid to cinnamon when fresh, viscid, densely scaly with erect or suberect pointed concolorous scales; stipe with pallid scales. 1. *H. squarrosoides.*
  - Pileus lemon-yellow to tawny or fiery-yellow when fresh, dry, with fibrillose, superficial, sulphur-yellow scales; stipe with yellow floccose scales. 2. *H. flammans.*
- Spores 6–9 μ long.
  - Pileus viscid.
    - Brown cystidia present in the hymenium; pileus reddish-yellow to tawny, 4–15 cm. broad; lamellae 4–10 mm. broad.
      - Stipe stout, increasingly scaly downward, viscid. 3. *H. aurivellum.*
      - Stipe slender, uniformly scaly throughout, dry. 4. *H. adiposum.*
    - Brown cystidia absent; pileus lemon-yellow, 2–5 cm. broad; lamellae 2–4 mm. broad. 5. *H. limonellum.*
  - Pileus dry.
    - Pileus pallid to brown, with minute dot-like scales. 6. *H. angustipes.*
    - Pileus yellow to ochraceous-orange with larger conspicuous scales.
      - Stipe 1–4 cm. long, 1–5 mm. thick, with a distinct bulb at the base. 7. *H. tuberculosum.*
      - Stipe 5–12 cm. long, 5–12 mm. thick, not bulbous at the base.
        - Cystidia numerous, brown; pileus with recurved scales. 8. *H. floccosum.*
        - Cystidia none; pileus with appressed-fibrillose scales. 9. *H. fulvosquamosum.*
- Spores 9–14 μ long.
  - Spores elliptic-fusoid, the ends pointed; lamellae 3–6 mm. broad. 10. *H. albocrenulatum.*
  - Spores oblong-ellipsoid, the ends rounded; lamellae 6–12 mm. broad. 11. *H. aurivelloides.*

Species of tropical North America. 12. *H. scobifer.*

1. **Hypodendrum squarrosoides** (Peck) Overholts.

Agaricus squarrosoides Peck, Ann. Rep. N. Y. State Mus. **31**: 33. 1879.
Pholiota squarrosoides Sacc. Syll. Fung. **5**: 750. 1887.

Pileus 2.5–10 cm. broad, subglobose to convex or nearly plane, light-colored, typically cinnamon-buff or cinnamon in dried plants, viscid, covered with erect, pointed, cinnamon or tawny scales that give color to the pileus, sometimes disappearing on the margin; context white or slightly yellowish; lamellae sinuate-adnate, medium-close, 4–7 mm. broad, whitish becoming brownish-ferruginous, cinnamon or ochraceous-tawny in dried plants; veil forming a floccose, persistent or evanescent annulus; stipe central, equal, brownish and with recurved light-cinnamon or tawny scales below the annulus, white and smooth above, solid or stuffed, 5–15 cm. long, 5–12 mm. thick; spores ellipsoid or oblong-ellipsoid, smooth, 4–6 × 3–4 μ; cystidia present, variable, either hyaline, pointed at the apex, projecting slightly, or brown, obtuse or pointed, sometimes projecting, both types measuring 25–35 × 12 μ.

Type locality: Catskill Mountains, New York.
Habitat: On stumps and trunks of deciduous trees.
Distribution: Maine to Connecticut, and westward to Michigan.
Illustrations: Ann. Rep. N. Y. State Mus. **54**: *pl. 73, f. 6–14;* Atk. Stud. Am. Fungi ed. 2. *pl. 48;* Bull. Conn. Geol. Nat. Hist. Surv. **3**: *pl. 21;* Trans. Wisc. Acad. **17**: *pl. 36, 37.*

2. **Hypodendrum flammans** (Batsch) Murrill, Mycologia 4: 261. 1912.

Agaricus flammans Batsch, Elench. Fung. 87. 1783.
Pholiota flammans Sacc. Syll. Fung. **5**: 753. 1887.

Pileus 2–5 (–8) cm. broad, convex to plane, sometimes umbonate, lemon-yellow or tawny-yellow, zinc-orange or tawny in dried plants, dry, adorned with yellow, superficial, floccose-fibrillose scales that may in large part disappear with age; context thin, yellow; lamellae adnate or very slightly uncinate, medium-close, 2–5 mm. broad, yellow or ferruginous, snuff-brown in dried plants, or young specimens retaining their yellow color; veil lemon-yellow, fugacious; stipe central, equal, with yellow, recurved, floccose scales or scarcely more than densely yellow-floccose up to the annulus, stuffed or hollow, yellow, 2–7 cm. long, 2–5 mm. thick; spores oblong, smooth, 3–5.5 × 2–3 μ; cystidia abundant, flask-shaped or clavate-fusoid, brown or hyaline, projecting slightly, 30–40 × 6–12 μ.

Type locality: Europe.
Habitat: On dead wood of both deciduous and coniferous trees.
Distribution: New York, Michigan, and Oregon; also in Europe.
Illustrations: Batsch, Elench. Fung. *pl. 7, f. 30;* Cooke, Brit. Fungi *pl. 368 (396);* Fries, Ic. Hymen. *pl. 104, f. 1;* Ricken, Blätterp. Deutschl. *pl. 55, f. 5;* Trans. Wisc. Acad. **17**: *pl. 41, f. C.*

3. **Hypodendrum aurivellum** (Batsch) Overholts.

Agaricus aurivellus Batsch, Elench. Fung. Contin. 1: 153. 1786.
Pholiota aurivella Gill. Champ. Fr. 441. 1876.

Pileus 4–13 cm. broad, campanulate to convex, often broadly umbonate, when young more or less uniformly ochraceous-orange to tawny, when mature becoming more uniformly tawny, at first covered with large appressed spot-like scales which may in large part disappear and when wet may become more or less gelatinous, viscid; context yellow; lamellae sinuate-adnate or adnate, close, dark-rusty-brown when mature; veil forming a superior, torn, spore-stained, partly evanescent annulus; stipe central or excentric, equal or tapering upward, dry, yellowish or yellowish-brown, floccose above the annulus, fibrillose below and increasingly scaly or shreddy downward with fibrillose scales that may become recurved, solid, 5–8 cm. long, 5–15 mm. thick; spores exactly and constantly oblong-ellipsoid, smooth, 7–9.5 × 4–5 μ; cystidia present, often rather rare, brown, sometimes projecting and rather conspicuously sharp-pointed, sometimes imbedded and blunt, 6–8 μ in diameter.

TYPE LOCALITY: Europe.
HABITAT: On trunks of living (rarely dead) deciduous or coniferous trees.
DISTRIBUTION: Illinois, Colorado, California, and Oregon; also in Europe.
ILLUSTRATIONS: Batsch, Elench. Fung. *pl. 22, f. 114, 115;* Cooke, Brit. Fungi *pl. 351* (*390*); Trans. Wisc. Acad. 17: *pl. 38, 39.*

4. **Hypodendrum adiposum** (Batsch) Overholts.

Agaricus adiposus Batsch, Elench. Fung. Contin. 1: 147. 1786.
Pholiota adiposa Quél. Champ. Jura Vosg. 93. 1872.

Pileus 3–16 cm. broad, hemispheric to convex or plane, antimony-yellow to zinc-orange or finally the center somewhat tawny, decorated with rather medium-sized squamules of a darker color than the rest of the pileus, and drying down to small dark spots on a tawny base, large thick specimens sometimes areolate in dry weather, all colors well retained in dried plants, viscid or glutinous or dry in dry weather; context thin or rather thick, white or light-yellow, with no marked taste; lamellae adnate or sinuate-adnate, rather close, 4–8 mm. broad, grayish-brown then yellow or rusty-brown, honey-yellow to tawny in dried specimens; veil yellow, forming a slight, floccose, evanescent annulus; stipe central or excentric, terete, equal or nearly so, viscid, yellow or tawny, with few or many erect or somewhat recurved yellow or tawny scales, or sometimes only fibrillose, solid or stuffed, rarely with a small hollow, 4–12 cm. long, 5–20 mm. thick; spores ellipsoid or oblong-ellipsoid, smooth, 7–9 × 3–4.5 μ; cystidia present, not conspicuous, not projecting, dark-brown, clavate, 20–35 × 5–9 μ.

TYPE LOCALITY: Europe.
HABITAT: Stumps and trunks of deciduous and perhaps of coniferous trees.
DISTRIBUTION: Massachusetts to Ohio and westward; also in Europe.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. 49: *pl. 46;* Atk. Stud. Am. Fungi *pl. 43;* ed. 2. *pl. 47;* Batsch, Elench. Fung. *pl. 22, f. 113;* Berk. Outl. Brit. Fungol. *pl. 8, f. 2;* Cooke, Brit. Fungi *pl. 353* (*395*)*;* Hard, Mushr. *f. 211;* Mycologia 1: *pl. 7, f. 1–2.*

5. **Hypodendrum limonellum** (Peck) Murrill, Mycologia 4: 261. 1912.

Agaricus limonellus Peck, Ann. Rep. N. Y. State Mus. 31: 33. 1879.
Pholiota limonella Sacc. Syll. Fung. 5: 753. 1887.

Pileus 2.5–5 cm. broad, convex or nearly plane, sometimes umbonate, lemon-yellow when fresh, retaining the color in the dried plants or becoming slightly tawny, with scattered, reflexed or suberect, fibrillose, reddish or tawny scales, viscid; context thin and yellow; lamellae sinuate-adnate or slightly adnexed, close, 2–4 mm. broad, whitish becoming ferruginous, honey-yellow or cinnamon-buff in dried plants; veil forming a floccose, evanescent, yellow annulus; stipe central, equal, yellowish, with scattered recurved yellow scales, smooth above the annulus, solid, 3–7 cm. long, 3–5 mm. thick; spores ellipsoid or ovoid, smooth, deep-brown, 6.5–7.5 × 4.5–5 μ; cystidia none; trama with a distinct central medulla.

TYPE LOCALITY: Griffins, New York.
HABITAT: Prostrate trunks of beech and birch.
DISTRIBUTION: Known only from the type locality.

6. Hypodendrum angustipes (Peck) Overholts.

Agaricus angustipes Peck, Ann. Rep. N. Y. State Mus. 30: 40. 1878.
Pholiota angustipes Sacc. Syll. Fung. 5: 740. 1887.

Plants cespitose, 2.5–7 cm. broad, hemispheric becoming convex or nearly plane, brown or grayish-brown, becoming ochraceous-brown or subalutaceous, drying between avellaneous and cinnamon-buff or somewhat ochraceous-tawny, slightly viscid when moist, squamulose with minute, dot-like, appressed scales; context fleshy, thin, yellowish or whitish, with unpleasant taste; lamellae sinuate-adnate to adnate or slightly decurrent, medium-close, 3–6 mm. broad, whitish or creamy-yellow, becoming tawny-brown, cinnamon-buff, or cinnamon in dried plants; veil forming a slight usually evanescent annulus; stipe central, equal or tapering downward, whitish to avellaneous, slightly squamose or fibrillose, stuffed or hollow, 3–7.5 cm. long, 4–12 mm. thick; spores ellipsoid, smooth, dilute-brown under the microscope, 6–8 × 3–5 μ; cystidia none or scarcely noteworthy as small collapsed basidium-like bodies, brown in color, and occurring with the basidia.

TYPE LOCALITY: Schenevus, New York.
HABITAT: In pastures or open woods, commonly near or around old stumps.
DISTRIBUTION: New York, Ohio, and Wisconsin.
ILLUSTRATION: Trans. Wisc. Acad. 17: *pl. 34*.

7. Hypodendrum tuberculosum (Schaeff.) Overholts.

Agaricus tuberculosus Schaeff. Fung. Bavar. 4: Ind. 34. 1774.
Pholiota tuberculosa Gill. Champ. Fr. 443. 1876.

Pileus 2–6 cm. broad, convex to plane, rarely depressed, obtuse, more or less ochraceous-orange, ochraceous-tawny in herbarium specimens, dry, glabrous when young, soon breaking up into appressed- or erect-innate squamules; context yellow, thin, with a mild taste and no odor; lamellae emarginate or becoming free, broad, yellow then tawny, the edges serrate; veil forming a superior, often evanescent annulus; stipe central, with a prominent bulb just at the base and rooting below, fibrillose or slightly scaly, incurved, hollow, yellowish, 1.5–3 cm. long, 1–5 mm. thick; spores ellipsoid or oblong-ellipsoid, smooth, 6–8.5 × 4–5 μ; cystidia none.

TYPE LOCALITY: Europe.
HABITAT: On dead wood of deciduous trees.
DISTRIBUTION: Reported by Harper from Michigan; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 370 (398) A;* Fries, Ic. Hymen. *pl. 104, f. 2;* Schaeff. Fung. Bavar. *pl. 79;* Trans. Wisc. Acad. 17: *pl. 41, f. A, B.*

8. Hypodendrum floccosum (Schaeff.) Overholts.

Agaricus floccosus Schaeff. Fung. Bavar. 4: Ind. 27. 1774.
Agaricus squarrosus Pers. Syn. Fung. 268. 1801.
Pholiota squarrosa Quél. Champ. Jura Vosg. 93. 1872.

Pileus 3–10 cm. broad, campanulate to convex or plane, yellowish or yellowish-brown, antimony-yellow to tawny in dried specimens, covered with recurved, tawny or yellowish scales, dry; context yellowish, with a mild taste; lamellae sinuate-adnate and often somewhat decurrent, medium-close, 3–6 mm. broad, pallid then ferruginous, in dried plants varying from honey-yellow to tawny-olive or tawny; veil forming a thick, persistent, floccose annulus often striate on the upper surface; stipe central, equal, pallid, yellow or brown, with recurved scales up to the annulus, solid, 5–12 cm. long, 5–12 mm. thick; spores oblong or ellipsoid, smooth, 6–8 × 3.5–4.5 μ; cystidia present, variable, of two general types: (a) hyaline, abundant, pointed at the apex, projecting, and (b) brown, blunt or truncate at the apex, mostly projecting, both types 25–35 × 7–14 μ.

TYPE LOCALITY: Europe.
HABITAT: On dead trunks or stumps of various trees, both deciduous and evergreen.
DISTRIBUTION: Maine to District of Columbia, and westward to Michigan and Colorado; also in Europe.
ILLUSTRATIONS: G. Bernard, Champ. Rochelle *pl. 19, f. 1;* Bull. N. Y. State Mus. 10: *pl. 79, f. 1–7;* Cooke, Brit. Fungi *pl. 367 (391)*; Curt. Fl. Lond. 4: *pl. 71;* Hard, Mushr. *f. 217;* Hussey, Ill. Brit. Myc. *pl. 8;* Pat. Tab. Fung. *f. 340;* Paulet & Lév. Ic. Champ. *pl. 137. f. 1, 2;* Schaeff. Fung. Bavar. *pl. 61;* Trans. Wisc. Acad. 17: *pl. 35.*

9. Hypodendrum fulvosquamosum (Peck) Overholts.

Pholiota fulvosquamosa Peck, Bull. Torrey Club 30: 95. 1903.

Pileus fleshy, 6–12 cm. broad, rather thin, convex becoming nearly plane, dry, covered with a tawny fibrous cuticle of brownish fibrillose scales, the lighter-colored flesh showing up when the fibers separate into scales, sometimes concentrically cracked about the disk; context white, becoming brownish where cut, with taste and odor of radishes; lamellae rather narrow, close, adnate or joined to a slight collar around the stipe, whitish becoming pinkish-cinnamon then dark-cinnamon, with white crenulate edges; veil forming an ample, membranous, persistent annulus, scaly below and striate on the upper surface; stipe central, equal, stuffed or hollow, covered below the ring with numerous erect, subfloccose, tawny scales, slightly floccose above the annulus, 5–8 cm. long, 8–10 mm. thick; spores elliptic or ellipsoid, rather strongly apiculate at the base, dark-ferruginous-brown, smooth, 6–8 × 3.5–4.5 μ; cystidia none or not noteworthy.

TYPE LOCALITY: Lansing, Michigan.
HABITAT: About the base of trees or attached to buried wood.
DISTRIBUTION: Michigan.
ILLUSTRATION: Trans. Wisc. Acad. 17: *pl. 60.*

10. Hypodendrum albocrenulatum (Peck) Overholts.

Agaricus albocrenulatus Peck, Bull. Buffalo Soc. Nat. Sci. 1: 49. 1873.
Pholiota albocrenulata Sacc. Syll. Fung. 5: 760. 1887.

Pileus 2.5–7 cm. broad, conic-campanulate to convex or nearly plane, yellowish-brown to testaceous or Sanford's-brown, the darker of these colors in dried plants, viscid, with erect or suberect, brown or blackish, floccose scales that are easily separable and sometimes disappear in old plants; lamellae sinuate-adnate or slightly decurrent, medium-close or slightly distant, 3–6 mm. broad, grayish becoming ferruginous, the edges distinctly white-crenulate and remaining so at least in part in the dried plants; veil forming a slight fugacious annulus or partly appendiculate to the margin of the pileus; stipe central, equal or slightly tapering upward, sparingly or abundantly squamose up to the annulus, pallid or brown below, white and furfuraceous at the apex, 5–10 cm. long, 5–15 mm. thick; spores broadly elliptic or fusoid-elliptic, smooth, brown, 11–14 × 5–7 μ; cystidia none.

TYPE LOCALITY: Adirondack Mountains, New York.
HABITAT: At base of trees or on prostrate trunks, especially of sugar-maple; one collection said to have been from a hemlock stump.
DISTRIBUTION: New Hampshire, New York, Michigan, and Tennessee.
ILLUSTRATION: Trans. Wisc. Acad. 17: *pl. 42, 43.*

11. Hypodendrum aurivelloides Overholts, sp. nov.

Pileus 5–8 cm. broad, hemispheric or broadly campanulate to convex, ferruginous to tawny, lighter-colored on the margin, sometimes carob-brown in dried plants, probably viscid, with a few scattered, spot-like or appressed scales; context yellow, rather thick; lamellae sinuate-adnate or with a decurrent tooth, medium-close or slightly distant, 7–12 mm. broad, whitish then ochraceous-tawny or russet; veil forming a thin, superior, persistent or somewhat evanescent, floccose or submembranous annulus; stipe central, equal, yellowish or brownish, more or less scaly, the scales sometimes somewhat gelatinous, solid, 4–8 cm. long, 5–10 mm. thick; spores oblong-ellipsoid, smooth, deep-brown, 9–11 × 6 μ; cystidia numerous or rare, brown, not projecting, 25–35 × 6–8 μ. (See page 348.)

Type collected at Ohio Creek, Colorado, at an elevation of 2400 meters, August 24, 1899, *Mullenex brothers* (herb. N. Y. State Mus.).
HABITAT: On dead trees or from wounds in living *Alnus, Salix*, or *Betula.*
DISTRIBUTION: Wyoming, Colorado, and New Mexico.

12. Hypodendrum scobifer (Berk. & Curt.) Murrill, Mycologia 5: 35. 1913.

Agaricus scobifer Berk. & Curt. Jour. Linn. Soc. 10: 289. 1868.
Pholiota scobifera Sacc. Syll. Fung. 5: 753. 1887.

Pileus 1–2 cm. broad, convex, fulvous, clothed with slender, conic, erect, darker scales, dry even on the margin; lamellae very narrow; stipe central, enlarged below, clothed as the pileus; spores muricate, 8–10 × 4–5 μ.

TYPE LOCALITY: Cuba.
HABITAT: About the roots of trees.
DISTRIBUTION: Known only from the type locality.

76. CORTINARIUS * Fries, Epicr. Myc. 255. 1838.

Agaricus § *Cortinaria* Pers. Syn. Fung. 276. 1801.
Cortinaria S. F. Gray, Nat. Arr. Brit. Pl. **1**: 627. 1821.
Agaricus § *Telamonia* Fries, Syst. Myc. **1**: 210. 1821.
Agaricus § *Inoloma* Fries, Syst. Myc. **1**: 216. 1821.
Agaricus § *Phlegmacium* Fries, Syst. Myc. **1**: 226. 1821.
Agaricus § *Dermocybe* Fries, Syst. Myc. **1**: 227. 1821.
Agaricus § *Myxacium* Fries, Syst. Myc. **1**: 247. 1821.
? *Telamonia* Peck, Bull. N. Y. State Mus. **1**^{2}: 8. 1888.
? *Dermocybe* Peck, Bull. N. Y. State Mus. **1**^{2}: 8. 1888.
? *Hydrocybe* Peck, Bull. N. Y. State Mus. **1**^{2}: 9. 1888.
? *Myxacium* Peck, Bull. N. Y. State Mus. **1**^{2}: 14. 1888.
Dermocybe Fayod, Ann. Sci. Nat. VII. **9**: 372. 1889.
Hydrocybe Fayod, Ann. Sci. Nat. VII. **9**: 372. 1889.
Telamonia Fayod, Ann. Sci. Nat. VII. **9**: 373. 1889.
Myxacium Fayod, Ann. Sci. Nat. VII. **9**: 374. 1889.
Phlegmacium Fayod, Ann. Sci. Nat. VII. **9**: 375. 1889.
Sphaerotrachys Fayod, Ann. Sci. Nat. VII. **9**: 374. 1889.
Inoloma P. Karst. Medd. Soc. Faun. Fl. Fenn. **18**: 70. 1891.
Hydrocybium Earle, Bull. N. Y. Bot. Gard. **5**: 440. 1909.
Bulbopodium Earle, Bull. N. Y. Bot. Gard. **5**: 441. 1909.

Pileus fleshy, putrescent, solitary, gregarious or cespitose; surface dry or viscid, glabrous, silky or scaly; context floccose-fibrillose; lamellae persistent, dry, changing color during process of maturing, at length powdery with the clinging spores, adnate to emarginate; stipe central, fleshy, at first connected with margin of pileus by a cobwebby cortina; universal veil present or lacking, usually evanescent, either gelatinous or fibrillose-interwoven in texture; spores cinnamon-brown to ferruginous in mass, mostly with roughened epispore.

Type species, *Agaricus violaceus* L.

Surface of pileus covered by a gelatinous veil or pellicle, always more or less viscid or glutinous when moist.
  Stipe at first viscid or glutinous from veil. — I. MYXACIUM.
  Stipe not viscid.
    Stipe with a marginate-depressed bulb at base. — II. BULBOPODIUM.
    Stipe equal, clavate, or bulbous; bulb not marginate. — III. PHLEGMACIUM.
Surface of pileus without a gelatinous veil or pellicle, hence not viscid.
  Pileus dry, *i.e.*, not hygrophanous, innately scaly, fibrillose or silky.
    Stipe stout, usually clavate-bulbous. — IV. INOLOMA.
    Stipe rather slender, equal or tapering upward; pileus silky. — V. DERMOCYBE.
  Pileus hygrophanous.
    Universal veil present, so that the stipe is peronate or annulate at first, or leaving superficial fibrils on the margin of the pileus. — VI. TELAMONIA.
    Universal veil lacking; cortina when copious sometimes leaving a slight annular zone on stipe. — VII. HYDROCYBE.

I. MYXACIUM

Stipe cylindric or attenuate below or ventricose.
  Lamellae and stipe at first some shade of violet or blue.
    Spores large, more than 10 μ long.
      Spores 14–18 × 7–9 μ; pileus 3–5 cm. broad; stipe deep-violet-blue within, quickly fading. — 1. *C. splendidus.*
      Spores 12–15 × 6.5–8 μ; pileus 5–7 cm. broad; stipe violaceous within. — 2. *C. cylindripes.*
    Spores small, normally not more than 10 μ long. (See division with clavate stipes.)
  Lamellae never truly violaceous or blue, sometimes grayish or cesious at first.
    Stipe sheathed by a pale-blue universal veil, ventricose; pileus radiately-wrinkled; spores 12–15 × 8–9 μ. — 3. *C. elatior.*
    Stipe or veil white or whitish.
      Stipe at first peronate by a thick veil, this at length broken into thick concentric ridges; pileus orange to tawny-fulvous; spores 10–14 × 6–7 μ. — 4. *C. mucifluus.*
      Stipe with thin appressed remnants of the more or less evanescent veil.
        Spores 12–15 × 6–7 μ; pileus chestnut-brown, even; stipe becoming fibrillose. — 5. *C. mucosus.*
        Spores 14–18 × 7–9 μ; pileus tawny-orange, striate on the margin. — 6. *C. muscigenus.*

* By CALVIN HENRY KAUFFMAN. The manuscript was prepared several years ago, but the author felt, only a few months before his last illness, that it required no revision, and it is now published essentially as it was left at his death in June 1931.

Stipe clavate or bulbous or attenuate upward.
  Taste not at all bitter.
    Pileus some shades of yellow or brown.
      Spores 10–12.5 × 5–6 μ; stipe 7–14 cm. long; pileus yellowish-brown. — 8. *C. submarginalis.*
      Spores smaller, subglobose; pileus yellow.
        Stipe solid, floccose; spores 6–7.5 × 5.5–6.5 μ. — 9. *C. sphaerosporus.*
        Stipe stuffed, with hollow apex, not floccose; spores 7–9 × 6–7 μ. — 10. *C. delibutus.*
    Pileus violet, purplish, or drab.
      Stipe stout, 10–20 mm. thick; pileus pale-drab to smoky-gray. — 7. *C. griseoluridus.*
      Stipe less than 10 mm. thick.
        Spores subglobose; pileus drab to gray. — 11. *C. sterilis.*
        Spores elliptic; pileus violet to purplish.
          Spores 8–10 μ long; odor not of radish. — 13. *C. iodes.*
          Spores 10–12.5 μ long; odor of radish. — 15. *C. heliotropicus.*
  Taste of surface of pileus bitter; pileus 2–5 cm. broad.
    Pileus yellow; stipe white. — 12. *C. vibratilis.*
    Pileus lavender-violet; stipe whitish, tinged violet by the universal veil. — 14. *C. iodeoides.*

II. BULBOPODIUM

Lamellae (and at least the apex of stipe) at first violet, purplish, blue, or shades of these colors.
  Lamellae turning purplish when bruised.
    Stipe stuffed to hollow; context not turning purplish; pileus yellow-ochre-tawny. — 22. *C. subpurpurascens.*
    Stipe solid; context turning purplish when bruised.
      Spores ellipsoid, 8–10 × 5–5.5 μ; pileus umber-purplish, 2–8 cm. broad. — 23. *C. purpurascens.*
      Spores spheroid, 7–8 × 6–7.5 μ; pileus violet-purple, 8–16 cm. broad. — 24. *C. sphaerosperma.*
  Lamellae not turning purplish when bruised.
    Spores averaging more than 10 μ long.
      Surface of pileus chiefly violet or purplish.
        Pileus and stipe at length lutescent; universal veil ochraceous; cortina copious. — 20. *C. velicopia.*
        Pileus and stipe pale-violaceous, fading, not becoming lutescent; universal veil white. — 25. *C. caesiocyaneus.*
      Surface of pileus not violet or purplish; context sometimes at first showing these colors.
        Pileus normally 4–6 (7) cm. broad.
          Lamellae broad, violet-amethyst; pileus yellow (rarely with violet); bulb white; spores 12–14 × 6–7 μ. — 27. *C. caerulescens.*
          Lamellae narrow and crowded; pileus yellow.
            Spores 9–12 (13) × 5–6 μ; lamellae adnexed. — 28. *C. metarius.*
            Spores 11–14 (15) × 6–8 μ; lamellae adnate to subdecurrent. — 17. *C. arquatus.*
        Pileus normally 6–10 (12) cm. broad.
          Spores averaging more than 12 μ long; surface of pileus yellow.
            Context pale-incarnate; stipe white downwards, without evident universal veil. — 19. *C. lilacinopes.*
            Context deep-violet; pileus and universal veil bright olive-yellow. — 16. *C. Atkinsonianus.*
          Spores not more than 12 μ long; pileus tawny-reddish; stipe pallid or violet-tinged; bulb white. — 18. *C. purpureophyllus.*
    Spores not more than 10 μ long.
      Pileus 3–5 cm. broad, yellow; bulb flat, saucer-shaped; spores 8–10 × 4–5 μ. — 29. *C. callochrous.*
      Pileus larger.
        Bulb large and prominently depressed-marginate; plant pale-violaceous-lilac; lamellae narrow. — 21. *C. michiganensis.*
        Bulb relatively small; lamellae rather broad.
          Context, pileus and stipe at first violet-purple; pileus at length smoky-olive-gray. — 26. *C. aggregatus.*
          Context white, at length lutescent.
            Pileus pale-orange-yellow, not streaked. — 30. *C. glaucopoides.*
            Pileus slate-gray, fulvous-streaked. — 31. *C. glaucopus.*
Lamellae at first green, olivaceous, smoky, or assuming shades of these.
  Context and young lamellae at the very first tinged with violet, blue, or purplish, but lamellae soon olivaceous.
    Spores 9–11 (12) × 5.5–6.5 (7) μ; pileus variegated with brown, tawny, and slight olivaceous hues. — 32. *C. montanus.*
    Spores 8–9.5 × 5–6 μ; pileus Dresden-brown to tawny.
      Bulb yellow from universal veil; stipe 6–10 mm. thick; lamellae narrow-linear. — 33. *C. scaurus.*
      Bulb white or whitish; stipe 10–20 mm. thick; lamellae broader than preceding. — 34. *C. herpeticus.*

Context and gills not at the very first violet or blue.
  Pileus ecru-olive to Hays-russet; stipe solid, white within and without; in coniferous forests. — 35. *C. orichalceus.*
  Pileus green, then pale-yellow; stipe stuffed then hollow, blue within and without; in frondose woods. — 36. *C. virentophyllus.*
Lamellae at first yellow, fulvous, cinnamon, reddish, or rusty-brown.
  Growing in the woods.
    Spores not more than 10 μ long.
      Spores ellipsoid; pileus and stipe sulphur-yellow; arising from yellow mycelium. — 38. *C. fulmineus.*
      Spores subglobose, 8–9 × 6–8 μ; pileus at first buff-citrine then clay-colored. — 41. *C. citrinellus.*
    Spores averaging more than 10 μ long.
      Taste of context decidedly bitter; pileus and universal veil yellow; spores 15–18 (20) × 7–9 μ. — 40. *C. elegantioides.*
      Taste not bitter.
        Pileus not corrugate.
          Spores 9–12 μ long; pileus bright-orange, darker on the disk, lamellae broad. — 37. *C. fulgens.*
          Spores more than 12 μ long.
            Pileus yellow, with tawny spots; no manifest universal veil; spores 12–15 × 8–9 μ. — 39. *C. elegantior.*
            Pileus dull-red to orange-tawny; bulb concolorous from universal veil; spores 15–18 × 7–8.5 μ. — 43. *C. rubens.*
        Pileus coarsely corrugate, tawny-yellow; stipe elongate, often twisted; bulb small. — 44. *C. corrugatus.*
  Growing in greenhouses, mushroom beds, etc.; lamellae whitish to ochraceous at first. — 46. *C. intrusus.*
Lamellae at first white or pallid.
  Pileus pale-olivaceous-stramineous; stipe soft, becoming hollow. — 45. *C. olivaceo-stramineus.*
  Pileus without olive tints.
    Spores not more than 9 μ long; pileus at first white-hoary, lutescent to rusty-orange. — 42. *C. multiformis.*
    Spores more than 9 μ long.
      Taste of pellicle of pileus bitter; odor farinaceous; pileus paletan to darker. — 48. *C. aleuriosmus.*
      Taste not bitter.
        Pileus light-red; stipe stuffed, 6–10 mm. thick. — 47. *C. sublateritius.*
        Pileus and stipe white; stipe solid, 8–16 mm. thick. — 49. *C. albidus.*

III. PHLEGMACIUM

Stipe annulate or spotted with brown scales.
  Pileus 5–10 cm. broad, yellow to orange-ochraceous; stipe stout, annulate. — 50. *C. triumphans.*
  Pileus 3–6 cm. broad, bay-red; stipe spotted with brown scales. — 51. *C. maculipes.*
Stipe not spotted nor annulate.
  Stipe very long, 10–15 cm., 8–10 mm. thick.
    Stipe round-bulbous at base; on sphagnum; lamellae and stipe at first tinged with violet. — 52. *C. sphagnophilus.*
    Stipe not bulbous, subequal.
      Spores subspheroid; pileus yellowish-ochraceous. — 67. *C. longipes.*
      Spores elliptic; pileus reddish-yellow. — 68. *C. ophiopus.*
  Stipe not remarkably elongate, 5–10 cm. long.
    Pileus corrugated, pale-ochre; lamellae violaceous at first; stipe subequal. — 53. *C. copakensis.*
    Pileus not corrugated.
      Pileus radiately reticulate, orange-cinnamon (R); lamellae narrow. — 69. *C. corruscans.*
      Pileus not markedly reticulate.
        Lamellae at first violet, bluish, purplish or cesious.
          Spores subglobose.
            Pileus at first cinereous, virgate; lamellae at first dark-violet. — 54. *C. lapidophilus.*
            Pileus buff to clay-colored.
              Stipe stout, clavate-bulbous; lamellae pale-violaceous. — 55. *C. albidipes.*
              Stipe equal, 3–7 mm. thick; lamellae cesious at first. — 62. *C. decoloratus.*
          Spores ellipsoid.
            Pileus virgate, grayish, lutescent; spores 7–8.5 μ long. — 56. *C. lanatipes.*
            Pileus not virgate; spores larger.
              Context changing to blackish-purple when bruised; pileus 3–6 cm. broad, buff-brown. — 63. *C. porphyropus*
              Context not changing to purple.
                Pileus, lamellae, and context at first deep-lavender. — 57. *C. largus.*

Pileus not lavender.
Pileus thin and striate on the margin, brownish; spores 5–6 μ broad. 61. *C. substriatus.*
Pileus not striate.
Stipe vinaceous; spores 8–9 μ broad; pileus clay-colored. 58. *C. cyanopus.*
Stipe white, rarely violet at very apex; pileus yellow to tawny.
Lamellae lilac at first; spores 10–12 μ long. 59. *C. varius.*
Lamellae cesious at first; spores 8–10 μ long. 60. *C. claricolor.*
Lamellae not at first with violet colors.
Lamellae at first olivaceous or sooty-olive.
Taste of surface of pileus bitter; spores subglobose; pileus sooty-olive. 64. *C. infractus.*
Taste not bitter.
Spores ellipsoid; stem violaceous-tinged. 65. *C. olivaceus.*
Spores subglobose; pileus brownish-ochraceous. 66. *C. glutinosus.*
Lamellae at first yellow or pale-clay-colored to pallid.
Pileus virgate, with red fibrils; spores subglobose, 6–8 × 5–6 μ. 70. *C. virgatus.*
Pileus not virgate.
Stipe stout, 8–15 (20) mm. thick.
Spores 8–10 × 4.5–5.5 μ; pileus citrine (R) with olive tinge. 71. *C. immixtus.*
Spores 10–12 × 6–7 μ; pileus yellow.
Lamellae narrow; odor aromatic, penetrating. 72. *C. percomis.*
Lamellae broad; odor none.
Stipe 6–12 cm. long.
Pileus bright-reddish-yellow to tawny-orange; context white, scarcely lutescent. 73. *C. coloratus.*
Pileus olive-ocher to yellow-ochre; context at maturity becoming markedly sordid-yellow. 74. *C. saginus.*
Stipe short, 3–6 cm., stout, bulbous.
Lamellae very broad, the edge entire; stipe whitish, not lutescent-stained. 75. *C. balteatus.*
Lamellae of medium width, the edge eroded; stipe becoming rusty-stained. 76. *C. phyllophilus.*
Stipe 4–8 mm. thick.
Lamellae yellow at first; stipe bulbous, solid. 77. *C. luteo-fuscus.*
Lamellae white at first; stipe equal, stuffed-hollow. 78. *C. communis.*

IV. INOLOMA

Lamellae at first violet, purplish, lilac, gray, or shades of these colors.
Pileus distinctly and innately scaly.
Stipe abruptly rooting; plant large, chocolate-brown at maturity. 80. *C. squamulosus.*
Stipe not rooting.
Spores ellipsoid, 12–16 (18) × 7–9 μ; whole plant indigo-violet. 79. *C. violaceus.*
Spores subglobose.
Pileus ochraceous, covered by minute, erect, brown scales. 81. *C. asper.*
Pileus fawn-colored, covered by black-pointed brown scales, about or on decayed wood. 82. *C. pholideus.*
Pileus innately fibrillose, silky or only slightly scaly with minute scales.
Odor strong or distinctly noticeable on bruising or in age; pileus lavender.
Odor fetid; spores 9–12 × 5–6 μ. 83. *C. camphoratus.*
Odor spicy or musty; spores 7–9 × 5–5.5 μ. 84. *C. pyriodorus.*
Odor none or negligible.
Pileus normally large, 5–10 cm. broad.
Lamellae narrow and close.
Pileus, lamellae, and stipe unicolorous, pale-silvery-violaceous. 85. *C. argentatus.*
Pileus brownish-lilac; stipe whitish. 89. *C. Braendlei.*
Lamellae broad, subdistant.
Pileus, lamellae, and stipe unicolorous, lilaceous. 88. *C. lilacinus.*

Pileus and lamellae not unicolorous.
Stipe somewhat peronate from the whitish universal veil.
Spores 9–10.5 × 5–6.5 μ; pileus grayish-buff, then lutescent. 90. *C. subpulchrifolius.*
Spores 10–12 × 5.5–6.5 μ; pileus grayish-violaceous to reddish-brown. 92. *C. rimosus.*
Stipe not peronate, bulbous; spores 10–12.5 × 6.5–7.5 μ; pileus whitish to reddish-gray. 91. *C. pulchrifolius.*
Pileus normally 3–7 cm. broad.
Pileus and stipe silvery-violaceous-white.
Stipe equal above the marginate oblique bulb. 87. *C. obliquus.*
Stipe clavate or clavate-bulbous.
Stipe clavate, attenuate upward to subequal, 4–8 cm. long, 5–9 mm. thick. 86. *C. alboviolaceus.*
Stipe bulbous, 2–3 cm. long, 8–12 mm. thick, the bulb thicker. 108. *C. brevipes.*
Pileus with darker colors; spores 9–12 × 6–7.5 μ; pileus reddish-cinereous; stipe with an oval bulb. 93. *C. rubrocinereus.*
Lamellae at first yellowish-ochraceous.
Pileus some shade of yellow to tawny.
Spores ellipsoid; pileus pale-ochraceous. 97. *C. ochraceus.*
Spores subglobose.
Pileus more or less scaly with erect pointed scales.
Stipe arising from a white mycelium; plant tawny-yellowish. 94. *C. annulatus.*
Stipe arising from a yellow mycelium; plant saffron to chrome. 95. *C. croceocolor.*
Pileus appressed-tomentose to fibrillose-silky.
Stipe hard, equal, tapering downward or subventricose; cuticle thick, coarse and becoming broken. 99. *C. Whitei.*
Stipe clavate.
Pileus yellow-ocher, becoming ochraceous-orange in age; in coniferous forests. 96. *C. callisteus.*
Pileus sordid-buff to pale-ochraceous; in frondose or mixed woods. 98. *C. flavifolius.*
Pileus grayish-drab; stipe whitish; spores 7–8 × 4–4.5 μ. 100. *C. catskillensis.*
Lamellae at first white, pallid or brownish.
Pileus scaly.
Pileus and stipe variegated with appressed, red, hairy scales; context soft. 104. *C. bolaris.*
Pileus and stipe squarrose-scaly; lamellae brownish to fulvous. 109. *C. squarrosus.*
Pileus not scaly.
Pileus ochraceous-salmon (R); lamellae cinnamon-rufous. 103. *C. suillus.*
Pileus whitish, alutaceous, buff or drab.
Spores 10–12 μ long.
Plants very brittle, distorted, cespitose; lamellae subdistant, thick. 105. *C. distortus.*
Plants rather firm; lamellae rather close, thin. 102. *C. canescens.*
Spores 7–9 μ long.
Pileus and stipe silvery-white, tinted with drab; solitary to subcespitose. 106. *C. pinetorum.*
Pileus and stipe not silvery-white.
Pileus alutaceous, 2–4 cm. broad; stipe subfibrillose. 107. *C. modestus.*
Pileus pale-yellowish-buff; stipe very cespitose, subannulate. 101. *C. caespitosus.*

V. DERMOCYBE

Lamellae some shade of red.
Stipe blood-red, at least downward; lamellae rather broad.
Pileus blood-red.
Pileus usually broader than length of stem; spores 8–9 × 5–5.5 μ; in oak woods. 111. *C. cinnabarinus.*
Pileus less wide than stem; spores 6–7 × 4 μ; in coniferous regions. 110. *C. sanguineus.*
Pileus brown; spores 6–7 × 4–5 μ; in coniferous regions. 112. *C. anthracinus.*
Stipe yellow; pileus tawny-yellow; lamellae narrow. 113. *C. semisanguineus.*
Lamellae at first some shade of yellow or olive.
Spores elliptic.
Context, cortina, and stipe not olivaceous; stipe yellow.
Spores 6–7 × 4–5 μ.
Lamellae saffron-yellow to orange. 116. *C. croceofolius.*
Lamellae citron-yellow to cadmium-yellow. 114. *C. cinnamomeus.*
Spores 10–12 × 5 μ; lamellae broad, yellow. 117. *C. aureifolius.*
Context, cortina, or stipe with some shade of olive.
Spores 6–7 × 4–4.5 μ; context distinctly olive-green; pileus and stipe fulvous-yellow. 115. *C. malicorius.*
Spores 7–9 × 5–6 μ.
Stipe 3–5 mm. thick, 7–10 cm. long; on sphagnum; odor slight, not of radish. 118. *C. chrysolitus.*

Stipe 6–12 mm. thick, 5–7 cm. long; odor penetrating, of radish; taste subacrid. 119. *C. raphanoides.*
Spores globose to subglobose, about 6–7.5 μ diameter.
Lamellae adnate, yellow tinged with olive.
Odor none; stipe 3–7 cm. long, stout, sulphine-yellow (R); pileus 4–8 (10) cm. broad. 120. *C. subnotatus.*
Odor of radish; stipe 6–10 cm. long, light-green-yellow (R); pileus 3–6 cm. broad. 121. *C. clandestinus.*
Lamellae adnexed, luteous, subdistant; pileus 2–5 cm. broad. 122. *C. luteus.*
Lamellae at first violaceous.
Stipe 4–9 cm. long; lamellae at first violet or grayish-purplish; spores 7–9 × 6–7 μ. 123. *C. anomalus.*
Stipe 1–2 cm. long; lamellae adnexed, evanescently pale-violaceous at first; spores 6–7 × 5–6 μ. 124. *C. brevissimus.*
Lamellae at first white, pallid, or brownish.
Pileus and stipe pale-violaceous-drab; spores 9–10 × 5 μ. 126. *C. subtabularis.*
Pileus or stipe some other color.
Pileus white or whitish; spores subglobose.
Stipe equal or nearly so; pileus whitish, yellowish-tinged or ochraceous. 129. *C. albidifolius.*
Stipe irregularly clavate-bulbous, often decumbent at the base; pileus uniformly white. 131. *C. decumbens.*
Pileus some shade of brown or tawny.
Spores 15–16 × 8–9 μ; stipe slender, white; pileus chestnut-color. 128. *C. sericipes.*
Spores not more than 9 μ long.
Stipe short, 2–2.5 cm.; lamellae pale-tawny at first. 125. *C. basalis.*
Stipe longer.
Stipe slender, 2–4 mm. thick; pileus chestnut-brown, the umbo blackish; in fields. 127. *C. castanellus.*
Stipe 8–15 mm. thick; pileus Dresden-brown to old-gold; in coniferous forests. 130. *C. colymbadinus.*

VI. TELAMONIA

Pileus 3–10 cm. broad.
Lamellae at first violet, lilac, purplish, or shades of these.
Universal veil and annulus membranous; lamellae broad, subdistant, at first purplish. 132. *C. torvus.*
Universal veil interwoven-silky.
Pileus clothed with dense plumose-floccose covering, sepia; lamellae at first violet. 135. *C. plumiger.*
Pileus not plumose.
Stipe vermilion-red toward base; spores 8–9 × 4–5 μ. 137. *C. rubripes.*
Stipe not red.
Lamellae close; plant at first lavender in all parts; spores subglobose. 136. *C. deceptivus.*
Lamellae subdistant to distant.
Pileus 4–7 cm. broad, fuscescent; lamellae very broad. 138. *C. injucundus.*
Pileus 6–12 cm. broad.
Stipe 10–20 cm. long, relatively slender, radicating, deep-violet at base. 133. *C. evernius.*
Stipe 6–10 (12) cm. long, subclavate, subperonate by white veil. 134. *C. lucorum.*
Lamellae not with violet, purple, or lilac shades.
Pileus 3–7 cm. broad; stem clavate-bulbous.
Stipe and pileus brown; veil and annular band whitish. 140. *C. brunneofulvus.*
Stipe and pileus pale-grayish or whitish; lamellae adnexed. 142. *C. griseus.*
Pileus 5–8 (10) cm. broad.
Stipe clavate or clavate-bulbous; lamellae subdistant.
Universal veil red, leaving red concentric zones on stem; pileus tawny-rufescent, 6–15 cm. broad. 141. *C. armillatus.*
Universal veil whitish.
Spores globose, 5–7 μ in diameter; pileus snuff-brown (moist), then argillaceous. 139. *C. alutaceofulvus.*
Spores elliptic; pileus scarcely hygrophanous.
Pileus glabrous, cinnamon-brown to ochraceous-tawny; spores 10–12 μ long. 143. *C. bivelus.*
Pileus white-canescent to appressed-silky.
Spores 8–11 × 5–6 μ. 144. *C. laniger.*
Spores 7–8 × 4.5–5.5 μ. 145. *C. bulbosus.*
Stipe equal, yellow, ferruginascent at base; lamellae yellow at first. 146. *C. Morrisii.*
Pileus 2–4 (5) cm. broad, or smaller; stipe usually equal.
Lamellae at first violet, lilac, purplish, or shades of these.
Stipe 5–10 mm. thick; lamellae at first purplish.
Pileus purplish-umber; spores 7–8 × 4–4.5 μ. 151. *C. scutulatus.*
Pileus bay-brown, fading; spores 8–10 × 5.5–6.5 μ. 152. *C. adustus.*

Stipe 2–5 mm. thick.

Pileus convex, obtusely umbonate, 2–5 cm. broad; lamellae at first vinaceous-tinged. 153. *C. periscelis.*

Pileus conic to conic-campanulate.

Pileus glabrous, blackish-brown, fading. 154. *C. subflexipes.*

Pileus densely fibrillose-scaly, cinnamon-brown, with grayish-white scales. 155. *C. flexipes.*

Lamellae not at first with violet or purplish tints.

Stipe about 4–8 (10) mm. thick.

Pileus with rusty-yellow shades, at least after losing moisture; stipe 5–8 (9) cm. long.

Universal veil and median zone on stipe whitish.

Context brittle; pileus cinnamon to bay-brown (moist), tawny to rusty-yellowish (dry). 148. *C. distans.*

Context watery-soft; pileus ochraceous to yellowish-tawny when moist. 149. *C. hinnuleus.*

Universal veil and zone on stipe yellow or fawn-colored.

Lamellae close; veil fawn-colored; pileus silky-shining (dry). 150. *C. mammosus.*

Lamellae distant; stipe 5–10 cm. long; veil yellow. 147. *C. gentilis.*

Pileus chestnut-brown to walnut-brown (moist).

Lamellae close, pinkish-buff at first; pileus 2–5 cm. broad, walnut-brown, fading. 156. *C. nigrellus.*

Lamellae subdistant to distant; plant becoming blackish in age or when dried.

Spores 10–12 (13) × 6–8 μ; pileus vandyke-brown (moist). 157. *C. punctatus.*

Spores 8–10 × 5–6 μ; pileus chestnut-brown (moist). 158. *C. glandicolor.*

Stipe 2–4 (5) mm. thick, or less.

Spores 10–12 μ long; annular zone of stipe white.

Stipe 5–9 (10) cm. long, slender.

Umbo blackish (moist); spores 10–12 × 5–6 μ. 160. *C. iliopodius.*

Umbo chestnut (moist); spores 9–11 × 6–7.5 μ. 161. *C. gracilis.*

Stipe 2–5 (6) cm. long.

Stipe solid, 3–6 cm. long; all parts becoming bister or fuscescent. 159. *C. bistreoides.*

Stipe hollow, 2–4 cm. long; all parts tending to chestnut-color. 162. *C. badius.*

Spores averaging less than 10 μ long.

Surface of pileus covered by dense fibrils.

Spores 8–10 × 4–5 μ; pileus 0.5–2 cm. broad, umber to chestnut. 163. *C. impolitus.*

Spores 6–8 × 4–5 μ.

Pileus watery-cinnamon (moist), 2–5 cm. broad. 168. *C. hemitrichus.*

Pileus fuscous (moist), 1–3 cm. broad. 169. *C. paleaceus.*

Surface of pileus subglabrous or naked, except the margin.

Lamellae saffron-yellow; veil yellow; spores 7–9 × 5 μ. 167. *C. paludosus.*

Lamellae at first cinnamon, brownish or yellowish-tinged.

Stipe 1–3 mm. thick; spores 6–7.5 × 3.5–4.5 μ; pileus dark-brown (moist). 164. *C. castaneoides.*

Stipe 3–5 mm. thick; spores larger.

Pileus at length lacerate-scaly, at first obtusely campanulate-convex, snuff-brown. 165. *C. incisus.*

Pileus remaining smooth, at first conic.

Lamellae conspicuously broad, thick; pileus army-brown to avellaneous. 166. *C. rigidus.*

Lamellae medium-broad, thin; pileus sepia, with a black, prominent umbo. 170. *C. nigrocuspidatus.*

VII. HYDROCYBE

Margin of pileus at first incurved; pileus mostly convex-explanate.

Stipe clavate, subclavate, sub-bulbous, ventricose, or tapering upwards, whitish or violaceous-tinged.

Stipe at first violaceous-tinged or drab, especially upward.

Pileus 2–4 cm. broad, sooty-olivaceous (moist); spores 7–8 × 5 μ. 171. *C. livor.*

Pileus 4–8 (10) cm. broad.

Spores 10–12 × 7–8 μ; pileus brownish-ferruginous mixed with violaceous hues (moist). 172. *C. ferrugineo-griseus.*

Spores 7–8 (9) × 5–6 μ.

Lamellae violaceous-purplish at first; growing in thickets and frondose woods. 173. *C. saturninus.*

Lamellae drab to Mikado-brown at first; stipe often equal; in coniferous forests. 174. *C. privignus.*

Stipe not violet-tinged.

Stipe subradicating or short-attenuate below the thickened or sub-bulbous lower end.

Lamellae terra-cotta-colored; pileus 3–5 cm. broad; in coniferous forests. 175. *C. illuminus.*

Lamellae pallid to watery-cinnamon; pileus 5–10 cm. broad; mostly in frondose woods. 176. *C. duracinus.*

Stipe not attenuate at base.

Spores globose, 6–7 × 6 μ; pileus chestnut-brown (moist), fading to cinnamon-buff. 177. *C. dilutus.*

Spores elliptic.

Lamellae at first slightly violaceous; pileus 2–5 cm. broad, watery-brown (moist), fading to reddish-ochraceous. 178. *C. regularis.*

Lamellae at first pallid-brownish; pileus 5–7 (10) cm. broad.

Spores 6–8 × 4–5 μ; lamellae soon cinnamon-brown; in frondose woods. 179. *C. glabrellus.*

Spores 8–9 × 5–5.5 μ; lamellae soon Mars-yellow (R); in coniferous forests. 180. *C. armeniacus.*

Stipe equal or attenuate downwards, or sometimes tapering slightly upwards.

Stipe white, whitish or violaceous, becoming pallid or dingy in age.

Stipe or at least the apex of stipe at first violaceous or lilaceous.

Stipe solid; lamellae violaceous at first; pileus alutaceous. 181. *C. imbutus.*

Stipe stuffed to hollow.

Lamellae at first violet; pileus dark-chestnut (moist), scarcely fading; spores 7–9 × 4–5 μ. 182. *C. castaneus.*

Lamellae at first pale-clay-colored; pileus chestnut-brown (moist), fading; spores 7–8 × 5.5–6 μ. 183. *C. laetior.*

Stipe white or pallid; pileus 2–5 (6) cm. broad.

Pileus umbonate.

Spores globose, 6–7 × 6 μ; pileus chestnut-brown, very hygrophanous. 177. *C. dilutus.*

Spores elliptic, 8–9 × 5–6 μ; pileus walnut-brown (moist), brownish-drab (dry). 174. *C. privignus.*

Pileus convex-explanate, not umbonate.

Stipe 2–4 mm. thick; pileus pale-alutaceous (moist); spores 7.5–9 × 5–6 μ. 184. *C. pallidus.*

Stipe 5–10 (12) mm. thick.

Stipe at first clavate, then elongate-equal; pileus grayish-brown, the disk fulvous (moist); in coniferous forests. 185. *C. erugatus.*

Stipe equal or tapering downward; pileus bay to chestnut and hoary (moist); in frondose woods. 186. *C. subrigens.*

Stipe lutescent, fuscescent, brunescent, or olivaceous, at least at maturity.

Stipe brunescent or fuscescent; pileus chestnut-brown to watery-cinnamon.

Spores 7–10 × 6.5 μ, subellipsoid; lamellae crowded. 187. *C. praepallens.*

Spores 6.5–7.5 × 4–5 μ; lamellae subdistant. 188. *C. juberinus.*

Stipe yellowish, lutescent or olivaceous-tinged.

Spores 7–9 (10) μ long; stipe rigid, brittle.

Pileus distinctly yellow-ocher after losing moisture. 189. *C. angulosus.*

Pileus variegated-umber and olive-ocher (R) while losing moisture. 190. *C. isabellinus.*

Spores 6–7 μ long; pileus orange-cinnamon to orange-buff (R) after losing moisture. 191. *C. renidens.*

Margin of pileus at first straight on stipe; pileus conic to campanulate; stipe equal and usually slender.

Lamellae and stipe at first dark-violet-brownish; spores 6–7 × 3–4 μ. 192. *C. fuscoviolaceus.*

Lamellae not violaceous.

Stipe 3–6 mm. or 4–9 mm. thick.

Margin of pileus long-striatulate when moist; lamellae broad, subdistant; pileus Sudan-brown (R), fading quickly. 193. *C. obtusus.*

Margin of pileus even; stipe 4–10 mm. thick.

Stipe fuscescent, in age blackish; lamellae subdistant, broad. 194. *C. uraceus.*

Stipe whitish, subradicating-subfusiform; pileus cinnamon-rufous (R), quickly fading. 195. *C. rigens.*

Stipe 2–4 mm. thick.

Margin of pileus definitely striatulate when moist.

Stipe attenuate downward, subradicating; pileus 1–2 cm. broad, honey-yellow (moist), fading quickly. 196. *C. scandens.*

Stipe equal; pileus 1–2.5 cm. broad, rufous-cinnamon (moist); lamellae at first pale-ochraceous. 197. *C. acutus.*

Margin of pileus even.
- Growing on decayed wood; pileus chestnut-fulvous (moist); spores 6–7 × 4–5 μ. — 198. *C. lignarius.*
- Growing on the ground or humus.
  - Stipe violaceous at the apex when young; pileus chestnut-brown, the umbo blackish (moist). — 199. *C. erythrinus.*
  - Stipe without violaceous color.
    - Lamellae more or less ochraceous.
      - Spores oblong, 7–8 × 3.5–4.5 μ; pileus roods-brown (R) when moist; lamellae ventricose. — 200. *C. leucopus.*
      - Spores ellipsoid, 8–10 × 6–7 μ; pileus pale-chestnut (moist); lamellae narrow. — 201. *C. acutoides.*
    - Lamellae brown, broad, subdistant; pileus vinaceous-brown (R) when moist. — 202. *C. germanus.*

1. **Cortinarius splendidus** Peck, Ann. Rep. N. Y. State Mus. **29**: 42. 1878.

Pileus somewhat fleshy, campanulate-convex, subexpanded and obtuse, then plane and irregular, 3–5 cm. broad; surface very viscid when fresh, glabrous, even or pellucid, substriate on the margin, at first liver-brown (R) to Saccardo-umber (R), fading to ochraceous-tawny (R) or cinnamon-buff (R); margin at first incurved; context very thin on the margin, thicker on the disk, light-pinkish-cinnamon (R) or faded, the odor and taste mild; lamellae adnate, 4–5 mm. broad, close, whitish to violet at first, then cinnamon-buff (R) or cinnamon-brown (R); stipe equal, cylindric, rarely slightly enlarged at base, rigid-elastic, but soft within, solid-stuffed, at first sheathed by a pale-violaceous, thin, appressed, glutinous universal veil, sometimes deep-violet-blue within, but fading quickly to almost white; cortina white, violaceous-tinged; spores almond-shaped, inequilateral, ovate-pointed at one end, tuberculate, 14–18 × 7–9 μ, dark-brown under the microscope.

TYPE LOCALITY: Vicinity of Albany, New York.
HABITAT: In regions of conifers or mixed woods.
DISTRIBUTION: New York to North Carolina; Colorado.

2. **Cortinarius cylindripes** C. H. Kauffman, Bull. Torrey Club **32**: 321. 1905.

Pileus fleshy, obtusely orbicular when young, then campanulate and expanded, rather small in comparison with the length of the stipe, 3–7 cm. broad; surface very glutinous at first and shining, later opaque, at the very first lavender, then yellowish with a violaceous tinge, at length brownish-ochraceous, somewhat stained by these colors at various stages, smooth, at length longitudinally wrinkled; margin incurved and pellucid-striate; context thick on the disk, thin elsewhere, violaceous, soon sordid-white, the odor and taste slight; lamellae rather broad, 5–8 mm., adnate, emarginate, not attenuate in front, violaceous or lavender when young, becoming pale-cinnamon, not crowded, thin, the edge serratulate-flocculose and paler, somewhat wrinkled at the sides but not veined; stipe elastic, remarkably equal, 8–10 cm. long, 5–9 mm. thick, covered by a violaceous, glutinous universal veil, which remains as evanescent, adnate patches and at its junction with the partial veil as a slight annulus, smooth or fibrillose-striate at the apex, violaceous to dingy-white within, solid-stuffed; spores almond-shaped, rough-tuberculate, inequilateral, ellipsoid, 12–15 × 6.5–8 μ, dark-brown.

TYPE LOCALITY: Ithaca, New York.
HABITAT: In frondose and coniferous forests.
DISTRIBUTION: New England to Minnesota and Canada, and southward to North Carolina.
ILLUSTRATIONS: Bull. Torrey Club **32**: 306. *f. 2;* Jour. Myc. **13**: *pl. 98;* C. H. Kauffman, Agar. Mich. *pl. 64.*

3. **Cortinarius elatior** Fries, Epicr. Myc. 274. 1838.

Agaricus elatus Fries, Syst. Myc. **1**: 248. 1821.

Pileus moderately fleshy on the disk, campanulate-expanded, discoid or subumbonate, 4–9 cm. broad; surface viscid, olive-ochre (R) to medal-bronze (R) when moist, the disk darkest, fading to dingy-yellowish-ochre (R), radiately plicate-wrinkled on the submembranaceous margin; context soft, thin except the disk, pallid, the odor and taste mild; lamellae adnexed-

emarginate, at first pale-campanula-blue (R), then cinnamon (R), and finally much darker, moderately broad, close, the edge remaining bluish longer, then white-flocculose; stipe ventricose-elongate, attenuate toward both ends, 5–9 cm. long, 10–15 mm. thick, sheathed at first by a viscid, pale-campanula-blue (R), appressed, subfloccose universal veil, white at the apex and base, striate-sulcate above the sheath, solid, deeply imbedded in humus and soil; spores almond-shaped, coarsely tuberculate, 12–15 × 7–9 μ.

TYPE LOCALITY: Sweden.
HABITAT: Under Douglas fir, cedar and hemlock, in higher mountains.
DISTRIBUTION: Common on Mount Rainier and the Olympic Mountains, Washington; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 741–742* (*736–737*); Fries, Ic. Hymen. *pl. 149, f. 1.*

4. **Cortinarius mucifluus** Fries, Ic. Hymen. *pl. 148, f. 1;* hyponym. 1880; C. H. Kauffman, Agar. Mich. 1: 328. 1918.

Cortinarius collinitus Gill. Champ. Fr. 457. 1876.
Agaricus collinitus Fries, Syst. Myc. 1: 248, in part. 1821.

Pileus fleshy, at the very first subglobose, then campanulate-convex, finally campanulate-expanded to plane, obtuse, 3–8 cm. broad; surface glutinous when moist, the gluten derived from the very thick gelatinous pellicle, varying in color from whitish when young to straw-yellow or tawny-fulvous, sometimes stained with rusty or sulphur hues, shining when dry; margin incurved; context pallid or stained in age with yellow or rust-color, the odor and taste slight; lamellae at first pallid or grayish-white (cesious), then clay-colored to rusty-cinnamon, adnate to subemarginate, moderately broad, close; stipe cylindric or tapering downward, rather stout from the first, 6–12 cm. long, 7–12 mm. thick, rigid, spongy-stuffed, at the very first whitish and covered by the thick gelatinous layer of a universal veil, the veil cracking transversely, forming scaly, thick, sometimes squarrose bands of dried gluten, especially below, soon becoming discolored and then yellowish, rusty, or tawny, terminating above with the discolored cortina in the form of a collapsed ring; spores almond-shaped, inequilateral-elliptic, tuberculate, 10–13 × 6–7 μ (rarely up to 14.5 μ), rusty-cinnamon in mass.

TYPE LOCALITY: Sweden.
HABITAT: Margin of swamps.
DISTRIBUTION: New England and Canada to Virginia and Minnesota; Colorado to Washington and Oregon; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 148, f. 1;* Cooke, Brit. Fungi *pl. 738* (*733*), *740* (*735*); Gill. Champ. Fr. *pl. 301* (*206*); Ricken, Blätterp. Deutschl. *pl. 34, f. 1;* Michael, Führer Pilzfr. 3: *pl. 85;* Ann. Rep. N. Y. State Mus. 48: *pl. 13, f. 1–6;* C. H. Kauffman, Agar. Mich. *pl. 63.*

5. **Cortinarius mucosus** (Bull.) Ricken, Blätterp. Deutschl. 126. 1911.

Agaricus mucosus Bull. Herb. Fr. *pl. 549, f. D, E, F.* 1791.
Agaricus collinitis mucosus Fries, Syst. Myc. 1: 248. 1821.
Cortinarius collinitis mucosus Fries, Epicr. Myc. 274. 1838.

Pileus fleshy, rather firm, convex, then expanded-plane or repand, obtuse, 4–7(–9) cm. broad; surface glutinous from the separable pellicle, shining when dry, glabrous, varying in color, kaiser-brown (R) and ochraceous-tawny (R) to yellow-ochre (R), or on the margin with some shade of yellow-ochre, sometimes Mars-orange (R), even or slightly wrinkled on the margin when expanded; margin at first incurved; context rather thick on the disk, quite thin on the margin, moist, whitish, the odor and taste mild; lamellae adnate or subdecurrent by a tooth, then subemarginate or sinuate, 5–7(–9) cm. broad, crowded, easily separable from the trama of the pileus, at first whitish, sometimes tinged pale-drab, becoming tawny (R) at maturity; stipe subequal, sometimes tapering downward, rather stout and short, 4–6(–7) cm. long, 12–20 mm. thick, whitish within and without, solid and rather soft-fleshy, at length hollowed by grubs, peronate by the viscid, appressed, white, universal veil, the apex silky, zoned at the upper margin of the sheath by the remains of the rather copious white cortina; spores subellipsoid-subfusiform, subinequilateral, pointed at one end, practically smooth (even

under highest magnifications), 12–15 or 13–16(–17) μ long, always narrower than in its relatives, 5–7 μ wide.

TYPE LOCALITY: France.
HABITAT: Under pines.
DISTRIBUTION: Maryland to Alabama.
ILLUSTRATIONS: Bull. Herb. Fr. *pl. 549, f. D, E, F;* Ricken, Blätterp. Deutschl. *pl. 34, f. 3;* Cooke, Brit. Fungi *pl. 739* (*734*).

6. Cortinarius muscigenus Peck, Ann. Rep. N. Y. State Mus. 41: 71. 1888.

Cortinarius elatior pallidifolius Peck, Ann. Rep. N. Y. State Mus. **54**: 151, *pl. G, f. 22–26.* 1901.

Pileus fleshy, ovate, then convex or concave from the recurving of the margin, subumbonate, 3–6 cm. broad; surface glabrous, viscous with a separate pellicle, tawny-orange and widely striate on the margin when moist, tawny and shining when dry; context dingy-white, tinged with yellow; lamellae broad, ventricose, adnate, with a broad, shallow emargination, somewhat rugose on the sides, yellowish, becoming cinnamon; stipe elongate, subequal, 7–10 cm. long, 6–8 mm. thick, viscid, even, silky, solid, white or whitish; spores almond-shaped, rough-tuberculate, 14–17 × 1–9 μ (rarely up to 18.5 μ long).

TYPE LOCALITY: Wittenberg Mountain, New York.
HABITAT: Coniferous forests.
DISTRIBUTION: New England, New York, and New Jersey.

7. Cortinarius griseoluridus C. H. Kauffman, Papers Mich. Acad. 1: 134. 1923.

Pileus fleshy, broadly convex, then expanded, obtuse, rarely subumbonate, 5–8(–10) cm. broad; surface with a distinct glutinous pellicle, at first light-Quaker-drab (R) especially on margin, elsewhere becoming olive-ocher (R) on a smoky-gray (R) ground-color, even, glabrous at first, at length scaly-spotted or variegate-virgate from the drying gluten; margin at first incurved, then spreading, sometimes more purplish-tinged; context very thick on the disk, abruptly thin on the margin, soft, moist, at first tinted violaceous-gray, then watery-whitish with a tint of ocher-olive (R) under pellicle, the odor and taste mild; lamellae adnate-subdecurrent then emarginate with a tooth, close to crowded, moderately broad, at first pale-vinaceous-drab (R), soon avellaneous (R), finally rusty-brown, the edge minutely crenulate; stipe stout, often tapering upward from a clavate base, 4–9 cm. long, 10–20 mm. thick at apex, sometimes subequal and longer, sometimes with a large oval bulb and shorter, terete or compressed, firmly stuffed to hollow, at first violaceous-tinged within and without, the apex at first flocculose-furfuraceous, and soon white, elsewhere covered by the thin, viscid, appressed, subconcentric, grayish-lutescent patches from the glutinous universal veil, the bulb up to 30 mm. thick at times, and often abruptly short-pointed below; spores broadly ellipsoid-ovoid to subglobose, thick-walled, obscurely subreticulate-roughish, 8–10 × 7–8.5 μ, pale-rusty under microscope.

TYPE LOCALITY: Leal, Grand County, Colorado.
HABITAT: Under conifers in mountain forests.
DISTRIBUTION: Colorado.

8. Cortinarius submarginalis Peck, Bull. N. Y. State Mus. 10: 950. 1902.

Pileus fleshy, firm, convex, becoming nearly plane, concave by elevation of the margin, 5–10 cm. broad; surface viscid when moist, yellowish-brown, generally a little paler on the rather definite and commonly fibrillose margin; context white; lamellae thin, close, rather broad, adnate, creamy-yellow when young, soon cinnamon; stipe elongate, equal or slightly thickened at the base, 7–15 cm. long, 8–12 mm. thick, solid, silky-fibrillose, slightly viscid, whitish or pallid; spores almond-shaped, slightly rough, 10–12.5 × 5–6 μ.

TYPE LOCALITY: Bolton, New York.
HABITAT: In woods.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Bull. N. Y. State Mus. 10: *pl. L, f. 6–10.*

9. Cortinarius sphaerosporus Peck, Ann. Rep. N. Y. State Mus. 26: 61. 1874.

Pileus fleshy, hemispheric-convex, then expanded-plane, 3–7 cm. broad; surface glabrous, even, with a thick gelatinous straw-yellow pellicle, the pellicle glutinous when moist; context thin on the margin, violaceous at first, soon pallid; lamellae violaceous at the very first, soon whitish then cinnamon, adnate-subemarginate, close, rather broad; stipe subclavate or tapering upward, equal above, 5–10 cm. long, 5–8 mm. thick, spongy-stuffed, glutinous when moist from the thin universal veil, this on drying leaving thin yellowish patches on the lower portion, the apex at first pale-violaceous, soon white; spores ovoid-subglobose, slightly rough-punctate, 6–7.5 × 5.5–6.5 μ.

TYPE LOCALITY: Croghan, New York.
HABITAT: Moist coniferous woods or swamps.
DISTRIBUTION: New England, New York, Canada, and Michigan.
ILLUSTRATION: C. H. Kauffman, Agar. Mich. *pl. 65.*

10. Cortinarius delibutus Fries, Epicr. Myc. 276. 1838.

Pileus fleshy, thin, the disk thicker, hemispheric, then convex-expanded, obtuse, 3–8 cm. broad; surface glabrous, even, covered when fresh by the glutinous, aniline-yellow (R) to amber-yellow (R) universal veil, sometimes paler; context white, soft; lamellae adnate, thin, moderately broad, close to crowded, cesious-pallid at first, then clay-colored (R), the edge entire; stipe tapering upward to subequal, sometimes sub-bulbous, 4–7 cm. long, 5–8(–10) mm. thick, whitish at the apex, elsewhere covered by the thin, adnate, pale-yellow sheath or remains of the glutinous veil, stuffed-solid, hollow at the apex, white and moist within, the apex furfuraceous-glabrescent, elsewhere shining when dry; spores subspheroid, minutely rough, 7–8.5 × 6–7.5 μ.

TYPE LOCALITY: Sweden.
HABITAT: On moss under conifers, in mountain forests, 2700 meters elevation.
DISTRIBUTION: Colorado; also in Europe.
ILLUSTRATIONS: Ricken, Blätterp. Deutschl. *pl. 35, f. 4;* Cooke, Brit. Fungi *pl. 743* (*741*); Grevillea *pl. 108, f. 2.*

11. Cortinarius sterilis C. H. Kauffman, Bull. Torrey Club 32: 321. 1905.

Pileus fleshy, suborbicular when young, then convex-expanded, somewhat umbonate at times, 1.5–4.5 cm. broad; surface drab-gray to olive-buff, even, smooth, viscid, the margin incurved; context white, soft, thin; lamellae drab-gray at first, then light-cinnamon, rounded behind, then emarginate, not at all ventricose, rather crowded, the edge serratulate and white, later eroded, provided with sterile cells, relatively broad, 4–6 mm.; stipe clavate or tapering upward, 4–8 cm. long, 4–6 mm. thick or at base up to 10 mm., solid, spongy, dingy-white, tinged with light-blue toward the apex, clothed when fresh with the delicate patches of the viscid universal veil of the same color as the pileus within, pale-bluish at apex, white below; cortina white or sordid; spores subspheroid, almost smooth, 6–7 × 5–6.5 μ.

TYPE LOCALITY: Ithaca, New York.
HABITAT: Swampy places, in coniferous forests.
DISTRIBUTION: New York, Canada, and Michigan; Washington and Oregon.
ILLUSTRATIONS: Bull. Torrey Club 32: 304. *f. 1;* Jour. Myc. 13: *pl. 96.*

12. Cortinarius vibratilis Fries, Epicr. Myc. 277. 1838.

Agaricus vibratilis Fries, Syst. Myc. 1: 227. 1821.
Cortinarius (*Phlegmacium*) *amarus* Peck, Ann. Rep. N. Y. State Mus. 32: 30. 1880.
Myxacium amarum Peck, Bull. N. Y. State Mus. 1[2]: 14. 1888.

Pileus fleshy, convex, obtuse, gibbous, 2–5 cm. broad; surface bitter, with a glutinous pellicle, hygrophanous, yellow, ocher-yellow to fulvous-yellow, paler when dry, glabrous, even; context soft, thin except disk, white or whitish, intensely bitter; lamellae adnate to slightly subdecurrent or submarginate, thin, close, rather narrow, pallid to pale-ochraceous, then pale-

ochraceous-cinnamon; stipe variable in length, subclavate to tapering either way, 3–7 cm. long, 4–10 mm. thick, soft, pure-white, often viscid only at the base, stuffed, clothed when young by a glutinous, hyaline, universal veil, soon drying; spores narrowly ellipsoid, almost smooth, 6–7.5 × 4–5 μ.

TYPE LOCALITY: Sweden.
HABITAT: Humus in rich woods, in frondose and coniferous forests.
DISTRIBUTION: New England to Minnesota and southward; Colorado; Idaho and the northern Pacific states; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 744 (743);* Gill. Champ. Fr. *pl. 302 (256);* Ricken, Blätterp. Deutschl. *pl. 35, f. 2.*

13. **Cortinarius iodes** Berk. & Curt. Ann. Mag. Nat. Hist. II. **12**: 423. 1853.

Pileus fleshy, campanulate-convex, 2–6 cm. broad; surface glabrous, even, with a tough, viscid, separable pellicle, dark-violet to purplish, at length often yellowish on the disk; context thick on the disk, abruptly thin on the margin, violaceous then paler, the taste and odor none; lamellae adnate, close, moderately broad, violaceous at first, then gray-cinnamon; stipe equal, clavate-thickened or tapering to either end, 5–7 cm. long, 4–8 or 5–15 mm. thick, viscid, solid, subfibrillose; spores broadly ellipsoid, minutely rough-punctate, 8–10 × 6–6.5 μ.

TYPE LOCALITY: South Carolina.
HABITAT: Low woods.
DISTRIBUTION: New England to South Carolina.

14. **Cortinarius iodeoides** C. H. Kauffman, Agar. Mich. **1**: 335. 1918.

Pileus convex, then expanded, broadly umbonate to plane, 2–5 cm broad; surface deep lavender-violet or bluish when young or fresh, fading to livid-ashy, sometimes faintly-yellowish or buff-spotted, with a bitter pellicle glutinous when moist or young, glabrous, even; context at first pale-violaceous, soon white, thin on the margin, thickish on the disk; lamellae adnate, then emarginate, rather narrow, close, pale-violaceous, soon whitish, at length pale-ochraceous-cinnamon; stipe clavate-thickened at base, 2–6.5 cm. long, 4–8 mm. thick, variously covered when young by the thin, delicately violaceous, glutinous, universal veil, stuffed, silky or glabrous; spores ellipsoid, almost smooth, 7–7.5 × 4–4.5 μ, pale-ferruginous-cinnamon in mass.

TYPE LOCALITY: Ann Arbor, Michigan.
HABITAT: Frondose woods, among leaf-mold.
DISTRIBUTION: Eastern United States to Wisconsin.
ILLUSTRATION: C. H. Kauffman, Agar. Mich. *pl. 66.*

15. **Cortinarius heliotropicus** Peck, Bull. N. Y. State Mus. 94: 22. 1905.

Pileus fleshy, broadly campanulate, convex, or nearly plane, 2.5–6.5 cm. broad; surface fibrillose, viscid, heliotrope-purple, generally spotted or variegated by yellowish-white spots; context whitish, thin, the taste mild or slightly acrid, the odor slightly that of radish; lamellae narrow, thin, close, rounded behind, adnexed, concolorous with the pileus when young, cinnamon when mature; stipe firm, solid or spongy within, usually slightly thickened at the base, 3.5–7 cm. long, 4–8 mm. thick, silky-fibrillose, viscid, whitish and spotted with purple, or colored like the pileus, white within; spores ellipsoid, 10–12.5 × 5–6 μ.

TYPE LOCALITY: Smithtown, New York.
HABITAT: Woods.
DISTRIBUTION: New England and New York.
ILLUSTRATION: Bull. N. Y. State Mus. 94: *pl. P, f. 1–6.*

16. **Cortinarius Atkinsonianus** C. H. Kauffman, Bull. Torrey Club **32**: 324. 1905.

Pileus fleshy, convex, then expanded, 6–9 cm. broad; surface wax-yellow or flavous at first, tinted with olive, then alutaceous or reddish-tawny in places, with a viscid separable

pellicle, glabrous, even; context thick, rather soft, at first deep-violet or lavender, slowly fading, the taste and odor mild; lamellae adnate, becoming slightly sinuate, rather narrow, of uniform width, deep-violet or purplish at first, the edge sometimes olivaceous-yellowish, at length cinnamon; stipe 6–8 cm. long, stout, 12–18 mm. thick, deep-violet or violaceous-blue, concolorous within, solid, dry, equal or tapering upward from a rather thick, marginate, broadly turbinate bulb up to 3 cm. thick, and externally clothed by the olivaceous-yellow universal veil, the apex of stipe fibrillose, elsewhere hung with fibrillose remains of the olivaceous-yellow cortina; spores almond-shaped, ellipsoid, very tuberculate, 13–15 (rarely 16) × 7–8.5 μ, rusty-cinnamon in mass.

Type locality: Ithaca, New York.
Habitat: On the ground, in coniferous and mixed forests.
Distribution: New England to Michigan; Colorado.
Illustrations: Bull. Torrey Club **32**: 316. *f. 6;* Jour. Myc. **13**: *pl. 99;* C. H. Kauffman, Agar. Mich. *pl. 67.*

17. **Cortinarius arquatus** Fries, Epicr. Myc. 265. 1838.

Pileus fleshy, broadly convex, obtuse, expanded, regular, 4–8 cm. broad; surface viscid, glabrous, even, antimony-yellow (R), the disk often darker; context somewhat thick on the disk, slightly thinner on the margin, white, lutescent, the odor and taste mild; lamellae adnate, sometimes decurrent by lines, at length seceding, close to crowded, broad, 8–12 mm., violaceous or subpurpureous at first, then clay-colored (R), the edge suberose; stipe equal, the base bulbous by a volva-like universal veil leaving a free limb, solid, slightly fibrillose, the apex sometimes striate-ridged, and violaceous at first within and without, whitish downward, lutescent at base; spores broadly elliptic to subamygdaliform, punctate-rough, 11–14(–15) × 6–8 μ, variable in size, rusty-brown under the microscope.

Type locality: Sweden.
Habitat: Under conifers, in mountain forests.
Distribution: Colorado; also in Europe.
Illustration: Ricken, Blätterp. Deutschl. *pl. 36, f. 4.*

18. **Cortinarius purpureophyllus** C. H. Kauffman, Agar. Mich. **1**: 348. 1918.

Pileus fleshy, convex-expanded, 5–8 cm. broad; surface dull-tawny-red, fading to ochraceous-fulvous, glabrous, even, with a viscid, separable pellicle, the margin incurved; context whitish, thick, compact, the odor slight, the taste slowly disagreeable, somewhat bitter; lamellae rounded behind and adnexed, deep-lilac-purple, the color persistent, narrow, crowded, thin, the edge entire or suberoded; stipe equal or slightly narrower upward, 4–6 cm. long, 12–18 mm. thick, pallid or at first slightly tinged lilac-violaceous, spongy-stuffed or solid, fibrillose from the cortina, the apex violaceous within, with a marginate-depressed flattish bulb, the bulb white throughout, attached to a white mycelium; cortina copious; spores almond-shaped, ellipsoid, tuberculate, 10–12 × 6–7 μ, rusty-cinnamon in mass.

Type locality: Ann Arbor, Michigan.
Habitat: On the ground, in frondose woods.
Distribution: Michigan.

19. **Cortinarius lilacinopes** Britz. Bot. Centr. **62**: 307. 1895.

Pileus fleshy, broadly convex, then expanded, obtuse or subumbonate, 7–9 cm. broad; surface viscid, glabrous, even, antimony-yellow (R) to yellow-ocher (R), sometimes tawny-spotted from the drying gluten; context slightly and somewhat equally thick, the margin very thin, tinged incarnate or buff-pink (R), the odor slight, the taste slightly disagreeable; lamellae attenuate-adnate, narrow, attenuate in front, crowded, buff-pink (R) to vinaceous-fawn (R), then darker, the edge entire; stipe tapering upward from a large, marginate, subdepressed bulb, 6–9 cm. long, 12–20 mm. thick above, the bulb up to 30 mm. thick, firm, compact and at first with buff-pink (R) tints within, surface white at least downward, glabrescent, the apex fibrillose-silky above the annular zone formed from the copious cortina; spores sub-

ellipsoid, almond-shape, reticulate-rough under highest magnifications, 11–13(–14) × 6–7 (–8) μ, dark-rusty.

TYPE LOCALITY: Bavaria, Germany.
HABITAT: Under conifers, in mountain forests.
DISTRIBUTION: Colorado; also in Europe.

20. **Cortinarius velicopia** C. H. Kauffman, Agar. Mich. 1: 339. 1918.

Pileus fleshy, convex at first, soon broadly expanded to plane, 6–9 cm. broad; surface violet to buff at first, becoming dingy-yellowish-ochraceous as if stained, with a viscid, separable pellicle, even, glabrous, the margin incurved and at first appendiculate from the copious cortina; context pale-blue-violaceous, soon white, thick, moderately compact, the odor and taste mild; lamellae narrowed behind, narrowly adnate, moderately broad, close, at length dingy-yellowish or pallid, then cinereous, finally rusty-cinnamon, the edge minutely fimbriate, provided with sterile, inflated cells; stipe 6–8 cm. long, 8–18 mm. thick, violaceous-blue, fading to bluish, at length dingy-yellowish or pallid, hung with fibrillose remains of the cortina, dry, equal, solid, with a marginate, subdepressed, hemispheric bulb clothed by a thin ochraceous-buff universal veil; cortina very copious; spores ventricose-ellipsoid, with a prominent, papillate apiculus, very tuberculate, rather symmetric, 9–12 × 6–7 μ.

TYPE LOCALITY: Ann Arbor, Michigan.
HABITAT: On the ground, in frondose woods.
DISTRIBUTION: Michigan.

21. **Cortinarius michiganensis** C. H. Kauffman, Agar. Mich. 1: 350. 1918.

Pileus fleshy, compact, firm, broadly convex, then slowly expanded, 8–14 cm. broad; surface pale-violaceous to lilac, unicolorous, the color persistent, glabrous, even, glutinous when moist or young, then viscid, the margin persistently inrolled and tomentose-silky; context very thick, white or tinged with lilac, not changed by bruising, the odor and taste mild; lamellae rounded behind and adnexed, or almost free, narrow, crowded, thin, acuminate in front, pale-violaceous-white at first, then pale-ashy, finally ochraceous-cinnamon, the edge serratulate from the first; stipe stout, solid, 3–6 cm. long, 18–30 mm. thick, pale-violaceous-lilac to whitish, fibrillose from the cortina, marginate-bulbous, the bulb large, up to 4 cm. broad, white beneath, the flesh white except the violaceous apex; cortina bluish-white, at first attached to the bulb, evanescent, not copious; spores narrowly ellipsoid-ovoid, almost smooth, 8–10.5 × 4.5–5.5 μ, pale-ochraceous-cinnamon in mass.

TYPE LOCALITY: Ann Arbor, Michigan.
HABITAT: On the ground, in frondose woods.
DISTRIBUTION: New York to South Carolina, and westward to Wisconsin.

22. **Cortinarius subpurpurascens** Fries, Epicr. Myc. 265. 1838.

Cortinarius purpurascens subpurpurascens Fries, Hymen. Eur. 346. 1874.

Pileus fleshy, firm, campanulate, discoid or gibbous, then expanded, at length depressed, 5–10 cm. broad; surface viscid, purple-tinged at first, yellow-ocher to ochraceous-tawny with smoky-brown stains, scarcely virgate, glabrous, zoned by the decurved margin; context soon whitish, not changing to purple when bruised, compact, the odor slightly that of radish, somewhat pungent, the taste mild; lamellae adnexed-emarginate, crowded, rather narrow, purplish at first, then pecan-brown (R), becoming purplish when bruised, the edge entire; stipe subequal above the rather small, depressed-marginate, flattened bulb, 5–7 cm. long, 10–15 mm. thick, pale-violaceous, purplish where bruised, violaceous within, cortinate-fibrillose, stuffed, then tubular; spores ellipsoid-ovoid, rough, 8–9 × 5–6 μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in coniferous forests.
DISTRIBUTION: Adirondack Mountains, New York; Olympic Mountains, Washington.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 725* (*712*); Ricken, Blätterp. Deutschl. *pl. 36, f. 3* (as *C. purpurascens*).

23. **Cortinarius purpurascens** Fries, Epicr. Myc. 265. 1838.

Agaricus purpurascens Fries, Obs. Myc. 2: 70. 1818.

Pileus fleshy, broadly convex to subexpanded, 5–8 cm. broad; surface dark-purplish-umber or entirely violet-purple when young, soon discolored and variegated with clay-color or brown, opaque, glabrous, even, with a viscid, separable pellicle; context thick, compact, tinged azure or purplish, fading to whitish in age, but changing rapidly to deep-purple when bruised, the odor and taste mild; lamellae adnexed and rounded behind, then emarginate, rather narrow, close, at first azure-blue or darker, changing to deep-purple when bruised; stipe usually short, stout, 2–5 cm. long, 10–20 mm. thick, solid, subequal, fibrillose from the cortina, the bulb not large, subemarginate to distinctly marginate, scarcely ever depressed, soon oval, purplish within, quickly deeper-colored when bruised; spores ellipsoid-ovoid, rough-echinulate, 8–9.5 (rarely 10) × 5–5.5 μ, dark in mass.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in mixed forests.
DISTRIBUTION: New England to Wisconsin, and southward to North Carolina; Colorado.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 723* (*710*); Gill. Champ. Fr. *pl. 309* (*244*); C. H. Kauffman, Agar. Mich. *pl. 71*.

24. **Cortinarius sphaerosperma** C. H. Kauffman, Agar. Mich. 1: 347. 1918.

Pileus fleshy, large, broadly convex-expanded, 8–16 cm. broad; surface very viscid, with a separable pellicle, glabrous, even, deep-violet-purple, micaceous-shining when dry; context soon whitish, changing to purple when bruised, thick, compact, the odor slightly that of radish, the taste mild; lamellae adnate, then sinuate-subdecurrent, crowded, not broad, purple at first, then rusty-umber; stipe solid, stout, 6–9 cm. long, 15–20 mm. thick, dry, hung with the dense, spore-stained fibrils of a very copious purplish cortina, deep-purple like the cap, the rather small bulb subemarginate and disappearing, at length clavate-bulbous, whitish within, becoming purple when bruised; spores spheric or subspheroid, very tuberculate-rough, 7–8.5 × 7–7.5 μ, dark-ferruginous in mass.

TYPE LOCALITY: Ann Arbor, Michigan.
HABITAT: On the ground, in frondose woods.
DISTRIBUTION: Michigan.
ILLUSTRATION: C. H. Kauffman, Agar. Mich. *pl. 70*.

25. **Cortinarius caesiocyaneus** Britz. Bot. Centr. 62: 307, in part. 1895; 80: 58, in part. 1899; Maire, Bull. Soc. Myc. Fr. 26: 176. 1910.

Pileus fleshy, convex, then expanded-plane, sometimes depressed in the center, 5–12 cm. broad; surface bluish-violaceous-white to silvery-violaceous, glabrous, even, with a viscid, separable pellicle, silky-shining when dry, the margin becoming silky and at first incurved; context pale-violet, fading slowly, thick, the odor and taste mild; lamellae rather narrow, adnexed, rounded behind then sinuate, thin, pale-violaceous, soon pale-alutaceous, then cinnamon, crowded, the edge even or becoming eroded; stipe stout, 4–7 cm. long, 1–2 cm. thick, solid, pale-violaceous-white, concolorous within, equal above the large, flattened, marginate-depressed bulb, the bulb white on the surface from the white universal veil, attached to white mycelium; cortina violaceous-white; spores almond-shaped, ellipsoid, tuberculate, 10–12 (rarely 13) × 6–7 μ, cinnamon in mass.

TYPE LOCALITY: Bavaria, Germany.
HABITAT: In frondose or coniferous woods, on the ground among fallen leaves.
DISTRIBUTION: Northeastern North America to Missouri; Colorado; California.
ILLUSTRATION: Bull. Soc. Myc. Fr. 26: *pl. 8, f. 1–2*.

26. **Cortinarius aggregatus** C. H. Kauffman, Agar. Mich. 1: 346. 1918.

Pileus fleshy, convex, then subexpanded, obtuse and usually irregular from crowding, at length undulate, 5–12 cm. broad; surface glabrous or white-pruinose when young, at first

bright-purple-blue to purplish-gray, at maturity becoming smoky-olive-gray and streaked, with a viscid pellicle, the margin at first incurved; context thick, violaceous then faintly olivaceous-gray to dingy-white, not turning purple when bruised, the odor and taste mild; lamellae adnexed and rounded behind, then emarginate, close, moderately broad, violet-purple at first, then gray to cinnamon; stipes cespitose, each rather short, 4–7 cm. long, 10–20 mm. thick, solid, dry, purplish, darker at the base, the small bulb at the very first submarginate, not depressed, disappearing during development; cortina deep-violaceous, rather copious, attached to bulb at first, collapsing on the stem; spores narrowly ellipsoid, 7–8 × 4–4.5 μ.

TYPE LOCALITY: Ann Arbor, Michigan.
HABITAT: Among decaying leaves, in frondose woods.
DISTRIBUTION: Michigan.

27. **Cortinarius caerulescens** Fries; Maire, Bull. Soc. Myc. Fr. 27: 424. 1912.

Cortinarius caerulescens Fries, Epicr. Myc. 265, in part. 1838.

Pileus fleshy, convex, then convex-plane, quite thick, 3–6 cm. broad; surface with a separable, viscid pellicle, glabrous, even, violaceous-blue, ochraceous-tinged on the disk, sometimes entirely ochraceous-yellow, not hygrophanous, the margin at first incurved, pubescent and white, then spreading and violaceous; context pale-violaceous-blue, especially under the cuticle, then whitish, at length ochraceous-stained, the odor slight, the taste mild; lamellae arcuate, then plane or slightly ventricose, attenuate in front, rounded behind, thin, broad, rather broadly adnate, violet-amethyst or violet-blue at first, then rusty-brown, the edge serratulate; stipe cylindric-conic, 3–5 cm. long, 10 mm. thick, with a marginate bulb, fibrous-fleshy, dry, silky-fibrillose, violaceous-blue to amethyst-blue, the bulb white, solid; cortina violaceous at first; universal veil rapidly evanescent; spores subamygdaliform, ellipsoid, tuberculate, 12–14 × 6–7 μ.

TYPE LOCALITY: Sweden.
HABITAT: In coniferous and mixed forests.
DISTRIBUTION: Tennessee; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 722* (*709*); Grevillea *pl. 105, f. 3;* Bull. Soc. Myc. Fr. 26: *pl. 8, f. 3–5.*

28. **Cortinarius metarius** C. H. Kauffman, Papers Mich. Acad. 1: 137. 1923.

Pileus fleshy, convex-expanded, then plane, 4–7(–8) cm. broad; surface viscid, at the very first pale-bluish-violaceous, quickly lutescent, then mustard-yellow (R), Naples-yellow (R) or apricot-yellow (R), glabrous, even, the margin incurved and minutely tomentose, thin; context moderately thick on the disk, moist and tinged with violaceous-incarnate tints, quickly whitish then lutescent, the odor and taste mild or slight; lamellae adnexed, rounded behind, then sinuate-uncinate, narrow, 4–6(–7) mm., crowded, at first incarnate or amethystine, heliotrope-gray (R), soon fading and becoming pale-clay-colored (R); stipe solitary, subequal above the shallow and broadly marginate-depressed bulb, 4–6 cm. long, 10–18 mm. thick, sometimes compressed-subturbinate, solid, at first more or less violet within and without, the bulb covered by remnants of the yellowish universal veil (as in *C. callochrous*), superficially fibrillose above the bulb from the cortina; spores narrowly subellipsoid, inequilateral, almost smooth, 9–12 (rarely 13) × 5–6 μ, pale-yellowish-rusty under the microscope.

TYPE LOCALITY: Leal, Grand County, Colorado.
HABITAT: In mountain forests of spruce and fir.
DISTRIBUTION: Colorado.

29. **Cortinarius callochrous** Fries, Epicr. Myc. 265. 1838.

Agaricus callochrous Fries, Obs. Myc. 2: 68. 1818.

Pileus not large, convex, soon expanded-plane, 3–6 cm. broad; surface bright ocher-yellow to citron-yellow, fulvous on disk, with a viscid pellicle, glabrous, even; context thickish, rather compact, whitish; lamellae emarginate-adnexed, crowded, thin, rather narrow, rosy-violet to

violaceous-purple at first, at length pale-clay-cinnamon, the edge serratulate; stipe 3–5 cm. long, 5–9 mm. thick, solid, pale-violaceous or whitish at first, soon becoming dingy-yellowish, equal above the rather small, abrupt, marginate-depressed, shallow bulb, the bulb clothed at first by the yellow universal veil; spores subinequilateral, ellipsoid, 8–9 (rarely 10) × 4–5.5 μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in woods of beech and maple.
DISTRIBUTION: New York to Virginia, and westward to Michigan; also in Europe.
ILLUSTRATIONS: Gill. Champ. Fr. *pl. 306* (*200*); C. H. Kauffman, Agar. Mich. *pl. 68*.

30. **Cortinarius glaucopoides** C. H. Kauffman, Papers Mich. Acad. 1: 133. 1923.

Pileus fleshy, convex, obtuse, then expanded-plane, the margin decurved, often irregular from crowding, 5–10 cm. broad; surface with a viscid, separable pellicle, glabrous, even, antimony-yellow (R) to pale-orange-yellow (R), unicolorous, deeper-lutescent with age, not streaked; margin at first incurved; context thick, abruptly thinner on the margin, white or whitish at first, distinctly lutescent, the odor slight but penetrating, the taste mild; lamellae adnate-emarginate with a tooth, somewhat narrow to moderately broad, 5–8(–9) mm., close to crowded, at first pale-vinaceous-drab (R), becoming ochraceous-tawny (R), the edge suberose; stipe cespitose or in gregarious clusters, straight or curved, 4–7 cm. long, 10–15 mm. thick, subequal above the small, abrupt, oblique, marginate bulb, solid, at first slightly superficially fibrillose from the whitish cortina, or innately silky, white or whitish, sometimes tinged with drab (R) at the apex, lutescent toward base within and without, the bulb flattened beneath; spores narrowly ellipsoid, almost smooth under even the highest magnification, 8–9 × 4–5 μ, pale-rusty-brown.

TYPE LOCALITY: Leal, Grand County, Colorado.
HABITAT: Under conifers, in mountain forests.
DISTRIBUTION: Colorado.

31. **Cortinarius glaucopus** Fries, Epicr. Myc. 264. 1838.

Agaricus glaucopus Fries, Syst. Myc. 1: 224. 1821.

Pileus fleshy, convex, then expanded-plane, firm, rigid, the margin geniculate and often wavy, 5–12 cm. broad; surface viscid or glutinous, variegated, fulvous-streaked on a slate-gray or steel-gray ground-color, the margin greenish-gray and at first inflexed, the disk fulvous; context whitish then yellowish-tinged, thick, compact, the odor and taste mild; lamellae adnexed, then emarginate, moderately broad, close to crowded, at first violaceous-blue, finally clay-cinnamon; stipe cespitose-gregarious, rigid, 5–10 cm. long, sometimes short, 15–25 mm. thick, pallid with a pale-violaceous-blue tinge, becoming yellowish in age, violaceous-bluish to whitish within then sordid-yellowish, solid, almost equal above the abrupt, marginate, scarcely bulbous base, attached to a white mycelium; spores almond-shaped, subinequilateral, slightly rough-punctate, 8–9 × 4–5 μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in frondose woods.
DISTRIBUTION: Eastern United States to Wisconsin; also in Europe.

32. **Cortinarius montanus** C. H. Kauffman, sp. nov.

Pileus fleshy, broadly convex to subhemispheric, then expanded and discoid with decurved margin, 5–10 cm. broad; surface viscid from the thick adnate pellicle, glutinous when wet, at first variegated-hazel (R) and dresden-brown (R) with light-yellowish-olive (R) margin, becoming tawny (R) or ochraceous-tawny (R) to clay-colored (R), umber on the margin, even, glabrous; context up to 15 mm. thick, rather compact, abruptly thin on the margin, whitish or with a tinge of the color of the pileus, the odor and taste mild; lamellae emarginate-adnexed, at first adnate, rather narrow, 5–7(–8) mm., close, at first light-yellowish-olive (R) or olivaceous, at length buffy-olive (R) to Prout-brown (R), the edge entire; stipe firm, 4–7 cm. long, 10–20(–25) mm. thick, delicately white-silky-fibrillose, stuffed by white fibrous pith then hollow, the surface at first pale-Windsor-blue (R) to pearl-blue (R), concolorous within, equal

above the prominent, emarginate-depressed, oblique bulb, the bulb much thicker, at first covered by the light-chalcedony-yellow (R) universal veil, soon sordid, becoming soft-spongy; spores ellipsoid, subinequilateral, tuberculate, 9–11 (rarely 12) × 5.5–6.5(–7) μ, light-rusty-brown under the microscope. (See page 348.)

TYPE collected among humus, in dense coniferous forests of cedar and hemlock, Welches, Oregon, October 3, 1922, *C. H. Kauffman* (herb. Univ. Mich.).
DISTRIBUTION: Cascade and Olympic mountains, Oregon and Washington.

33. **Cortinarius scaurus** Fries, Epicr. Myc. 312. 1838.

Agaricus scaurus Fries, Syst. Myc. 1: 223. 1821.

Pileus fleshy, convex, obtuse or broadly subumbonate, at length plane or depressed, commonly small, the width much narrower than the length of stipe, 3–6(–8) cm. broad; surface viscid, glabrous, even or short-striate on the margin in age, Dresden-brown (R) at first or darker, at length tawny (R), sometimes when dry spotted on the disk from drying gluten; margin at first incurved and slightly fibrillose from the citrine-yellow cortina; context moderately thick on the disk, thin on the margin, rather soft, moist, strongly tinged by the color of the pileus; lamellae adnexed, becoming emarginate, narrow, 3–5 mm., crowded, at first mignonette-green (R) then tawny-olive (R), transversely rivulose at times, the edge entire; stipe strict, 6–10 cm. long, 8–10 mm. thick at apex, equal or tapering upward from the rather narrow, hemispheric, marginate, subdepressed bulb, at first solid or firmly stuffed, becoming soft and spongy, innately fibrillose-silky, glabrescent, Russian-blue (R) within and without, except the pallid or soon whitish base, fading and then shining, the bulb 15–25 mm. broad, at first covered by the straw-yellow (R) to citron-yellow (R) remnants of the universal veil; spores ellipsoid, subinequilateral, rough and subreticulate by interrupted ridges under highest magnification, 8.5–10 × 5–6 μ, rusty-brown under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: Under Douglas fir and hemlock, in mountain forests.
DISTRIBUTION: Olympic Mountains, Washington.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 146, f. 1;* Grevillea *pl. 107, f. 1;* Ricken, Blätterp. Deutschl. *pl. 37, f. 5.*

34. **Cortinarius herpeticus** Fries, Epicr. Myc. 268. 1838.

Pileus fleshy, convex, subexpanded, firm, 5–10 cm. broad; surface Dresden-brown (R) to tawny (R) or smoky-olive, then tawny-olive (R) or clay-colored, with a viscid or glutinous separable pellicle, shining when moist, opaque when dry, even, glabrous; margin at first incurved, thin; context thick, firm, abruptly thin on the margin, at first purplish, soon vinaceous-gray (R), then whitish; lamellae rounded behind, adnexed-emarginate, close to crowded, not broad, at first dusky-slate-violet (R) or olivaceous, then tawny-olive (R) to clay-colored (R) or darker; stipe 4–8 cm. long, 1–2 cm. thick, slate-violet (R) to lavender-purplish, concolorous within, fibrillose from the whitish cortina, whitish on the bulb, equal above the marginate-depressed bulb, the bulb somewhat thicker; spores subellipsoid, inequilateral, distinctly tuberculate-punctate, 7–9.5 × 5–5.5 μ, dark-rusty-brown under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: On mosses, in moist coniferous forests, in the north and in the mountains.
DISTRIBUTION: Michigan and Washington; also in Europe.
ILLUSTRATIONS: Ricken, Blätterp. Deutschl. *pl. 37, f. 4.*

35. **Cortinarius orichalceus** Fries, Epicr. Myc. 267. 1838.

Pileus fleshy, convex-expanded, obtuse to flattened, 5–8(–9) cm. broad; surface very viscid, at length spotted on the center by the drying gluten, ecru-olive (R) to olive-ochre (R), the disk laved and spotted by Hays-russet (R), at length entirely Hays-russet (R) except the darker-olivaceous margin; margin involute at first and tomentose-silky; context very thick, white, at length tinted pale-olivaceous, the odor none, the taste slightly disagreeable; lamellae at first adnate, then slightly sinuate, moderately broad, subventricose, crowded, at first dark-olive-buff (R) then darker, Isabella-color (R); stipe stout, 5–6(–8) cm. long, 2–2.5 cm.

thick, rigid, solid and compact inside, equal above the marginate, subdepressed, oblique bulb, at first covered by the obscure, slightly colored remnants of the universal veil, whitish within and without, the bulb larger and subturbinate; spores almond-shaped, tuberculate, 10–12 (–13) × 6–6.5(–7) μ, dark-rusty-brown under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: Under coniferous trees, in high mountains, 2400 to 3000 meters.
DISTRIBUTION: Colorado to Idaho, Washington, and Oregon; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 754* (*718*); Grevillea *pl. 113, f. 5; pl. 114, f. 4;* Ricken, Blätterp. Deutschl. *pl. 37, f. 3.*

36. **Cortinarius virentophyllus** C. H. Kauffman, Agar. Mich. 1: 353. 1918.

Pileus fleshy, convex, expanded-plane, regular, 5–8 cm. broad; surface glabrous, viscid, green to olivaceous-yellowish, fading to pale-ochraceous or straw-yellow, sometimes fulvous-tinged, slightly streaked by the drying gluten; context thickish on the disk, very thin on the margin, pallid-greenish, fading, subhygrophanous, with dark-watery-green border along the lamellae, the odor and taste mild; lamellae adnexed-emarginate, thin, close, somewhat narrow, gray-olive or green at first, becoming deep-green, the edge entire; stipe subcespitose, 5–7 cm. long, 10–15 mm. thick, silky-fibrillose, stuffed by fibrous pith then hollow, distinctly cyanous or pale-blue, fading to violaceous-whitish, bluish within then fading, equal above the sub-emarginate bulb, the bulb becoming oval or subobsolete; spores almond-shaped, broadly ellipsoid, distinctly tuberculate, 9–11 × 6–7 μ.

TYPE LOCALITY: Ann Arbor, Michigan.
HABITAT: On the ground, in frondose woods.
DISTRIBUTION: Michigan and Wisconsin.

37. **Cortinarius fulgens** Fries, Epicr. Myc. 267. 1838.

Pileus firm, broadly convex to plane, 6–15 cm. or more broad; surface bright-orange to orange-fulvous, the disk orange-ferruginous, somewhat virgate-streaked, very viscid when moist, the margin incurved at first; lamellae dilute-yellow, then deep-ferruginous-orange, emarginate, broad, close, the edge entire; stipe firm, 4–7 cm. long, 15–25 mm. thick, solid, yellow, covered by the dense rusty-stained fibrils of the cortina, equal or subequal above the large, marginate-depressed bulb; spores almond-shaped, abruptly apiculate, 9–12 × 6–7 μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in woods.
DISTRIBUTION: New York.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 716;* Gill. Champ. Fr. *pl. 305* (*223*).

38. **Cortinarius fulmineus** Fries, Epicr. Myc. 267. 1838.

Pileus fleshy, convex, then plane, 5–10 cm. broad; surface sulphur-yellow, scarcely changing to darker, sometimes with spot-like scales on the disk, viscid, even, glabrous; context thick on the disk, yellow or yellowish-white, rather soft, the odor and taste mild; lamellae adnate, then emarginate, moderately broad, close, sulphur-yellow at first, finally ochraceous-cinnamon, the edge becoming eroded; stipe short, 3–5 cm. long, 8–18 mm. thick, dry, pale, sulphur-yellow, sometimes merely yellowish-white, yellowish within, sometimes compressed, subfibrillose, then glabrescent and shining, equal above the shallow, marginate-depressed bulb, the bulb yellowish beneath and attached to a yellow mycelium; cortina scanty, whitish; spores almond-shaped, ventricose, slightly rough, 8–10 × 4–5.5 μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in frondose and mixed forests.
DISTRIBUTION: Maine to Michigan; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 717;* C. H. Kauffman, Agar. Mich. *pl. 71;* Ricken, Blätterp. Deutschl. *pl. 38, f. 3.*

39. **Cortinarius elegantior** Fries, Epicr. Myc. 267. 1838.

Agaricus elegantior Fries, Obs. Myc. 2: 64. 1818.

Pileus fleshy, hemispheric, then convex-expanded, 5–12 cm. broad; surface glabrous, viscid, antimony-yellow to light-orange-yellow (R), often mottled by brown spot-like drops,

opaque when dry; margin at first incurved; context compact, whitish-lutescent, the odor and taste mild; lamellae attenuate-adnate, 5–6 mm. broad, broadest in middle, attenuate to ends, crowded, straw-yellow (R) at first, then ochraceous-tawny (R), the edge subentire; stipe firm and rigid, 5–12 cm. long, 15–20 mm. or more thick, equal above the abruptly marginate, non-depressed, subturbinate bulb, solid, white-lutescent, innately fibrillose-silky, covered with the fibrils of the copious white cortina, without any manifest universal veil, compact and white-lutescent within; spores almond-shaped, coarsely tubercular, 12–15(–16) × 8–9 μ, rusty-brown under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: Under spruce and fir, in mountain forests.
DISTRIBUTION: Colorado; also in Europe.
ILLUSTRATION: Ricken, Blätterp. Deutschl. *pl. 38, f. 2.*

40. Cortinarius elegantioides C. H. Kauffman, Agar. Mich. 1: 344. 1918.

Pileus fleshy, convex, then expanded-plane, 4–7 cm. broad; surface cadmium-yellow, orange-fulvous on the disk, becoming fulvous-ferruginous in age, glabrous, even, with a glutinous separable pellicle; context thick, whitish or tinged greenish-yellow, the taste tardily but definitely bitter, the odor none; lamellae adnate, becoming deeply emarginate and uncinate, close, rather broad, varying in color, pale-yellowish-white, bright-citron-yellow, or sulphur-yellow, at length ferruginous, thin, the edge minutely crenulate; stipe rather stout, 5–8.5 cm. long, 10–18 mm. thick, subequal, dry, spongy-stuffed, yellowish-white or citron-yellow, the flesh greenish-yellow-tinged, with a marginate, subdepressed, subturbinate bulb, the bulb clothed on the surface by the yellow to subferruginous, subgelatinous universal veil; cortina slight, fugacious; spores almond-shaped, ellipsoid, very tuberculate, 15–18 (rarely 19–20) × 7–9 μ.

TYPE LOCALITY: Ann Arbor, Michigan.
HABITAT: On the ground, in frondose woods.
DISTRIBUTION: New York, Michigan, and Missouri.
ILLUSTRATION: C. H. Kauffman, Agar. Mich. *pl. 69.*

41. Cortinarius citrinellus C. H. Kauffman, Papers Mich. Acad. 1: 130. 1923.

Pileus fleshy, convex-expanded, up to 10 cm. broad; surface very viscid, then somewhat floccose-dotted from the drying gluten, at first olive-lake (R) to buff-citrine (R), finally clay-colored (R) to honey-yellow (R); margin at first incurved and tomentose; context thick, except on the edge, at first tinged primrose-yellow (R) then whitish, the odor and taste slight; lamellae adnate and rounded behind, then sinuate, moderately broad, 8–10 mm., ventricose, close, in age almost subdistant, at first primrose-yellow (R), finally tawny (R); stipe 5–7(–8) cm. long, the apex 1.5–2 cm. thick, at first marginate-bulbous, becoming oval-bulbous, abruptly and obtusely short-pointed below bulb, the bulb densely fibrillose-tomentose from the primrose-yellow (R) veil, the veil elsewhere evanescent and the surface of the stipe concolorous with pileus; spores broadly ellipsoid to globose, tuberculate, 8–9 × 6–8 μ, brownish under the microscope.

TYPE LOCALITY. Leal, Grand County, Colorado.
HABITAT: Under pine and spruce, in mountain forests.
DISTRIBUTION: Known only from the type locality.

42. Cortinarius multiformis Fries, Epicr. Myc. 263. 1838.

Agaricus multiformis Fries, Obs. Myc. 2: 63. 1818.

Pileus fleshy, soon convex then expanded-plane, regular, 5–10 cm. broad; surface canescent-white-hoary when young, viscid, soon ochraceous-buff, becoming pale-ferruginous-orange, with a separable pellicle, at length somewhat dry and subshining, sometimes wrinkled in age from the drying gluten, the margin inrolled; context pallid-white at first, at length somewhat discolored, sublutescent, the odor and taste mild; lamellae attenuate-adnate, then emarginate, close, not broad, at first whitish, then alutaceous-cinnamon, the edge eroded at maturity;

stipe 4–9 cm. long, 10–20 mm. thick, spongy-solid, subfibrillose, white at first, then alutaceous, equal above the marginate or sometimes scarcely marginate bulb, the bulb at length becoming oval; cortina white, scanty, fugacious; spores subfusiform-ellipsoid, scarcely at all rough, 7–9 × 4–5.5 μ, pale, not becoming rusty.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in humus, in coniferous forests.
DISTRIBUTION: New England to Minnesota; Colorado; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 708, 709* (*701–702*); Grevillea *pl. 104, f. 4;* Ricken, Blätterp. Deutschl. *pl. 39, f. 1;* C. H. Kauffman, Agar. Mich. *pl. 72.*

43. **Cortinarius rubens** C. H. Kauffman, Agar. Mich. 1: 343. 1918.

Pileus fleshy, hemispheric, then convex-expanded, 3–7 cm. broad; surface vermilion-red to orange-fulvous, unicolorous, with a viscid, separable, toughish pellicle, glabrous, even, shining when dry; context thick, whitish, the odor faintly aromatic, the taste bitterish then disagreeable; lamellae adnexed, becoming emarginate, rather close, cesious or pale-drab at first, then argillaceous-cinnamon, the edge entire and tinged dull-citron-yellowish; stipe 4–7 cm. long, 1–1.5 cm. thick, solid, dry, pale-straw-yellow to whitish, citron-yellowish within, fimbriate from the cortina, equal above the rounded, marginate-depressed bulb, the bulb clothed by the vermilion-red universal veil except below, there white and attached to white mycelium; cortina white or tinged with red; spores almond-shaped, very inequilateral, tuberculate, 15–18 × 7–8.5 μ.

TYPE LOCALITY: Ann Arbor, Michigan.
HABITAT: On the ground, in frondose woods.
DISTRIBUTION: Michigan and Wisconsin.

44. **Cortinarius corrugatus** Peck, Ann. Rep. N. Y. State Mus. 24: 72. 1872.

Pileus fleshy, broadly campanulate, obtuse, 5–10 cm. broad; surface viscid when moist, coarsely and radiately corrugate or reticulate, tawny or yellowish-ferruginous, varying to yellow or ochraceous; context white, thin on the margin, the odor rather pleasant, the taste mild; lamellae adnate, rather broad, close, transversely striate, pallid or obscurely purplish-tinged at first, soon ferruginous-cinnamon, the edge eroded at length; stipe long-cylindric, 7–12 cm. long, 6–16 mm. thick, often fibrillose, spongy-stuffed, often hollowed by grubs, scurfy at apex, yellowish or tawny-yellowish, with a rather small, rounded-oval bulb clothed when fresh by the thin, tawny, adnate, and viscid remains of a universal veil, pallid or concolorous within; cortina almost lacking, evanescent; spores broadly ellipsoid, very rough-tuberculate, variable in size, 10–15 × 7–10 μ (usually 12–13 × 8–9 μ).

TYPE LOCALITY: Highlands, New York.
HABITAT: On the ground, among underbrush, in mixed and coniferous forests.
DISTRIBUTION: New England to New Jersey and Canada, and westward to Michigan.
ILLUSTRATIONS: Mem. N. Y. State Mus. 4: *pl. 58, f. 8–15;* Bull. Conn. Geol. Nat. Hist. Surv. 15: *pl. 21.*

45. **Cortinarius olivaceo-stramineus** C. H. Kauffman, Bull. Torrey Club 32: 322. 1905.

Pileus fleshy, broadly convex, slightly depressed in the center when expanded, 4–7 cm. broad; surface pale-straw-yellow with an olivaceous-tinge, slightly rufous-tinged in age, glabrous or silky-fibrillose, the disk sometimes covered with minute scales, viscid from a gelatinous pellicle, the margin incurved at first, with shreds of the cortina attached to it on expanding; context very thick on the disk, abruptly thin on the margin, white, dingy-yellowish in age, soon soft and spongy, the odor and taste mild; lamellae sinuate-adnexed, rather narrow, crowded, whitish at first, then pale-cinnamon, the edge serratulate and paler; stipe 6–8 cm. long, 5–18 mm. thick, spongy and soft within, sometimes becoming hollow, white and pruinate above the fibrillose remains of the cortina, with a slight, subobsolete, submarginate bulb,

the copious white cortina arising from its margin; spores ventricose-ellipsoid, with stout apiculus, almost smooth, granular within, 10–12 × 5.5–6.5 μ.

TYPE LOCALITY: Ithaca, New York.
HABITAT: On the ground, in frondose and mixed woods.
DISTRIBUTION: New York and Michigan.
ILLUSTRATIONS: Bull. Torrey Club **32**: 309, *f. 3;* Jour. Myc. **13**: *pl. 95.*

46. **Cortinarius intrusus** Peck, Bull. Torrey Club **23**: 416. 1896.

Pileus fleshy, convex-expanded, soon plane and subdepressed, 2.5–6 cm. broad; surface glabrous, whitish to dull-clay-colored, sometimes tinged tawny-ochraceous or reddish, viscid when moist, even or radiately wrinkled; context whitish, thin, the odor and taste slightly those of radish; lamellae rounded behind, adnexed or almost free, thin, close, not broad, whitish at the very first, soon creamy-yellowish to tawny-ochraceous, finally umber-brown, the edge subcrenulate and provided with capitate, sterile cells as in *Galera;* stipe 3–6 cm. long, 4–10 mm. thick, stuffed to hollow, whitish, at length stained by the spores, even or striate above, minutely floccose at first, glabrescent, equal or tapering, more or less abruptly bulbous; spores ellipsoid-ovoid, smooth, 6–7.5 × 4–5 μ, brownish-cinnamon in mass.

TYPE LOCALITY: Haddonfield, New Jersey.
HABITAT: Among cultivated plants, on the soil of greenhouses, mushroom-beds, flower gardens, plant-pots and similar substrata.
DISTRIBUTION: New England to New Jersey and Michigan.
ILLUSTRATION: C. H. Kauffman, Agar. Mich. *pl. 73.*

47. **Cortinarius sublateritius** Peck, Ann. Rep. N. Y. State Mus. **54**: 151. 1901.

Pileus fleshy, broadly convex or nearly plane, 5–7.5 cm. broad; surface glabrous, viscid, light-red, the margin incurved; context white; lamellae adnexed, emarginate, close, thin, plane, pallid at first, becoming cinnamon; stipe short, 3–6 cm. long, 6–10 mm. thick, equal or slightly tapering upward, stuffed, silky, whitish, abruptly bulbous; spores ventricose-ellipsoid, abruptly short-pointed at each end, rough-tuberculate, 10–12.5 × 5–6.5 μ.

TYPE LOCALITY: Westport, New York.
HABITAT: On the ground, in woods.
DISTRIBUTION: Known only from the type locality.

48. **Cortinarius aleuriosmus** Maire, Bull. Soc. Myc. Fr. **26**: 180. 1910.

Pileus fleshy, very compact, firm, broadly convex, 5–10 cm. broad; surface alutaceous-whitish at first, soon dingy-ochraceous-tan to russet-tan, sometimes sordid-tawny-yellowish in age, glabrous, with a glutinous pellicle when moist or young, becoming reticulate-rivulose from the drying gluten, the margin inrolled at first; context thick, white or with an evanescent violaceous tinge, the odor and taste mild; lamellae adnexed, narrow, crowded, pale-livid-grayish at first, sometimes pallid, then rusty-cinnamon, the edge erose-serratulate; stipe stout, short, 4–6 cm. long, 10–20 mm. thick, solid, compact, white or scarcely violaceous-tinged, fibrillose from the cortina, with a thick, turbinate, marginate bulb, the bulb not depressed, white below and arising from white mycelium; spores ellipsoid-almond-shaped, minutely tuberculate, 10–12 × 5–6 μ.

TYPE LOCALITY: France.
HABITAT: On the ground, in frondose woods.
DISTRIBUTION: New York and Michigan.
ILLUSTRATIONS: Bull. Soc. Myc. Fr. **26**: *pl. 7, f. 4–5;* Ricken, Blätterp. Deutschl. *pl. 39, f. 4.*

49. **Cortinarius albidus** Peck, Ann. Rep. N. Y. State Mus. **44**: 132. 1891.

Pileus fleshy, convex, then expanded, 5–10 cm. broad; surface white or whitish, even, glabrous, with a separable, viscid pellicle, shining when dry; context thick, white, the odor and taste mild; lamellae adnexed-emarginate, moderately broad, close, thin, white at first, then

pale-alutaceous to cinnamon, the edge even; stipe 5–8 cm. long, 8–16 mm. thick, solid, white, fibrillose from the cortina, with an oblique, marginate-depressed bulb attached to white mycelium; cortina white, copious; spores ellipsoid, scarcely rough, 9–11 × 5–6.5 μ.

TYPE LOCALITY: Carrollton, New York.
HABITAT: On the ground, in low frondose woods.
DISTRIBUTION: New England to New Jersey and Michigan.
ILLUSTRATION: Ann. Rep. N. Y. State Mus. **44**: *pl. 3, f. 1–4.*

50. Cortinarius triumphans Fries, Epicr. Myc. 256. 1838.

Cortinarius crocolitus Quel. Bull. Soc. Bot. Fr. **25**: 288. 1879.

Pileus fleshy, convex-plane, obtuse, 5–10 cm. broad; surface viscid, spotted with superficial patches of the veil, or glabrous and appressed-subtomentose on drying, especially on the disk, even, apricot-yellow to ochraceous-orange (R), finally becoming tawny; context soft, white, thick on the disk, the odor and taste slightly of coal-tar or radish; lamellae at first adnate-subdecurrent, then sinuate to emarginate, close, moderately broad, at first cesious-whitish, then ochraceous-buff to argillaceous, the edge entire; stipe thick above, 8–12 cm. long, 1–2 cm. thick, clavate-bulbous or rounded-bulbous, solid, at first sheathed by a whitish universal veil, this at length broken into yellowish-ochraceous annular patches terminating above the ring; spores almond-shaped, tuberculate, 12–15 × 6–7.5 μ, rusty-yellow.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in coniferous forests.
DISTRIBUTION: New York; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 141, f. 1;* Gill. Champ. Fr. *pl. 313* (*252*); Cooke, Brit. Fungi *pl. 692* (*682*); Ricken, Blätterp. Deutschl. *pl. 41, f. 2.*

51. Cortinarius maculipes Peck, Ann. Rep. N. Y. State Mus. 54: 150. 1901.

Pileus fleshy, convex, becoming nearly plane, 3–6 cm. broad; surface glabrous, but covered with a tenacious gluten, bay-red, becoming paler with age; context whitish; lamellae thin, close, rounded behind, slightly adnexed, whitish at first, becoming brownish-cinnamon; stipe equal or slightly tapering upward, 5–7.5 cm. long, 6–12 mm. thick, subradicating, solid or stuffed, silky-fibrillose, scaly-spotted, sometimes slightly annulate; spores ellipsoid, scarcely rough, 7.5–9 × 5–6 μ.

TYPE LOCALITY: Westport, New York.
HABITAT: On the ground, in woods.
DISTRIBUTION: Known only from the type locality.

52. Cortinarius sphagnophilus Peck, Ann. Rep. N. Y. State Mus. 29: 42. 1878.

Pileus fleshy, convex to expanded, 5–7.5 cm. broad; surface glabrous, viscid, pale-brown, marked with dark watery spots especially on the margin; lamellae moderately broad, subdistant, transversely rugulose, at first violaceous then cinnamon; stipe 10–15 cm. long, silky, striate, violaceous-white, then cinnamon, with an oval bulb at base; spores oblong-ellipsoid, slightly rough, 10–11.5 (rarely 12.5) μ × 5.5–6 μ.

TYPE LOCALITY: Greig, New York.
HABITAT: In sphagnum marshes.
DISTRIBUTION: Known only from type locality.

53. Cortinarius copakensis Peck, Ann. Rep. State Mus. 31: 35. 1879.

Pileus fleshy, convex, then expanded, often crowded and irregular, 3–7.5 cm. broad; surface viscid, corrugated, pale-ochre, slightly red-tinged; lamellae broad behind, subdistant, violaceous at first, the interspaces veiny, the edge eroded; stipe subcespitose, rather slender,

5–7 cm. long, 4–8 mm. thick, equal or tapering upwards, stuffed, silky, whitish; spores broadly ellipsoid to subglobose, rough-punctate, 7–9.5 × 7 μ.

TYPE LOCALITY: Albany, New York.
HABITAT: On the ground, in woods.
DISTRIBUTION: New York.

54. **Cortinarius lapidophilus** Peck, Ann. Rep. N. Y. State Mus. 31: 36. 1879.

Pileus fleshy, hemispheric, then convex-expanded, 5–7.5 cm. broad; surface at first cinereous, becoming ochre-tinged, often crowded and irregular, virgate with appressed fibrils; context whitish; lamellae crowded, dark-violaceous at first, then argillaceous-cinnamon; stipe 5–10 cm. long, 6–10 mm. thick, solid, equal or slightly thickened at base, whitish; spores broadly ellipsoid-ovoid to subglobose, rough-punctate, 7–8 × 6 μ.

TYPE LOCALITY: Ticonderoga, New York.
HABITAT: On rocky soil, in woods.
DISTRIBUTION: Known only from the type locality.

55. **Cortinarius albidipes** Peck, Bull. N. Y. State Mus. 157: 57. 1912.

Pileus fleshy, compact, hemispheric, then broadly convex, obtuse or subumbonate, 5–10 cm. broad; surface viscid, glabrous and shining when dry, buff-colored; context white, the taste mild; lamellae moderately close, pale-violaceous at first, cinnamon when mature, 4–6 mm. broad; stipe thick above, clavate-bulbous and tapering upward, 5–8 cm. long, 10–15 mm. thick at apex, firm, solid, silky-fibrillose, white; spores subglobose, 8–10 × 7–9 μ.

TYPE LOCALITY: Constableville, New York.
HABITAT: Among fallen leaves, in woods.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Bull. N. Y. State Mus. 157: *pl. 128, f. 1–6.*

56. **Cortinarius lanatipes** Peck, Ann. Rep. N. Y. State Mus. 42: 116. 1889.

Pileus fleshy, broadly convex or nearly plane, 2.5–7.5 cm. broad; surface viscid, grayish, often tinged with yellow, becoming yellowish or subfulvous and virgate with innate tawny fibrils when old; context whitish; lamellae adnexed, narrow, close, pale-violaceous at first; stipe short, 3–5 cm. long, 6–10 mm. thick, equal or tapering upward above the oval bulb, solid, subannulate, silky above the annulus, loosely fibrillose-tomentose below, white; cortina white; spores ellipsoid, 7–8.5 × 4–5 μ.

TYPE LOCALITY: North Elba, Adirondack Mountains, New York.
HABITAT: On the ground, in coniferous woods.
DISTRIBUTION: New York.

57. **Cortinarius largus** Fries, Epicr. Myc. 259. 1838.

Pileus fleshy, firm, convex-expanded, very obtuse, 5–10(–15) cm. broad; surface viscid or subviscid, at first varying from deep-lavender (R) to ecru-drab (R), soon changed to old gold (R), wood-brown (R) or tawny-olive (R), sometimes with margin violaceous-tinged at maturity, glabrous, appressed-silky and sometimes rivulose-wrinkled on the margin, this at first deep-lavender (R) soon fading to whitish; context rather compact, thick on the disk, abruptly thin on the margin, the odor and taste slight; lamellae adnate, then emarginate or adnexed-sinuate, moderately broad, narrowed at ends, close to crowded, at very first deep-lavender (R), usually as seen merely violet-gray (R), finally cinnamon (R), the edge entire; stipe rather stout, 5–10 cm. long, 7–12 mm. thick at the apex, tapering at first from a bulbous base, at length equal above the clavate or ovoid base, terete, stuffed by firm pith, then hollow (in American form), appressed-fibrillose from the cortina, glabrescent, the apex pruinose, sometimes minutely lacerate-subscaly, at very first deep-lavender (R), but quickly fading to whitish, concolorous within, the base of the stem whitish, and straw-yellow when bruised,

the bulb 10–20 mm. thick; spores ellipsoid, somewhat almond-shaped, tuberculate-dotted, 9–11(–12) × 5–6 μ, dark-rusty-brown.

TYPE LOCALITY: Sweden.
HABITAT: In mixed woods.
DISTRIBUTION: In the Appalachian Mountains, Virginia to Georgia.
ILLUSTRATION: Cooke, Brit. Fungi *pl. 701* (*693*).

58. **Cortinarius cyanopus** Fries, Epicr. Myc. 258. 1838.

Pileus fleshy, at first hemispheric and not embracing the bulb, then broadly convex-expanded, obtuse, 5–7 cm. broad; surface glabrous, even, viscid in wet weather, soon dry, clay-colored (R), opaque; context whitish, rather soft, thick except the margin, the odor and taste mild; lamellae adnate, then emarginate, 5–7 mm. or more broad, close, deep-vinaceous-lavender (R), soon pale-cinnamon, the edge markedly crenulate-uneven; stipe firm, equal or tapering upward from the definite bulb, solid, naked at the apex, innately silky, the lower part and bulb white, the upper part vinaceous-lavender within and without, the bulb either rounded or slightly margined above; cortina rather scanty; spores broadly ellipsoid, coarsely tuberculate, 10–12 × 8–9 μ, dark-brown under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: Under coniferous trees, in mountain forests, 2700 meters elevation.
DISTRIBUTION: Colorado; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 699* (*690*); Grevillea *pl. 102, f. 2.*

59. **Cortinarius varius** Fries, Epicr. Myc. 258. 1838.

Agaricus varius Fries, Syst. Myc. 1: 225. 1821.

Pileus fleshy, convex-expanded, very obtuse, regular, 4–8 cm. broad; surface viscid, glabrous, even, unicolorous, yellow-ochre (R) to tawny (R); margin at first incurved; context firm, white, or whitish, the odor and taste mild; lamellae adnate, then emarginate, close to crowded, at first rather narrow and vinaceous-lilac (R), at length broader and cinnamon, losing the lilac color slowly, the edges entire; stipe equal or clavate-bulbous, 5–7 cm. long, about 10 mm. thick at the apex, up to 20 mm. or more at the base, dry, stuffed, at length hollow, white or at first with violaceous tint at the apex, fibrillose, sometimes marked near the apex by an annular zone from the copious cortina; spores broadly ellipsoid, maturing slowly, tuberculate, 9–12 × 6–6.5 μ.

TYPE LOCALITY: Sweden.
HABITAT: Under Douglas fir and hemlock.
DISTRIBUTION: Olympic Mountains, Washington; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 698* (*689*).

60. **Cortinarius claricolor** Fries, Epicr. Myc. 257. 1838.

Agaricus claricolor Fries, Obs. Myc. 2: 65. 1818.

Pileus fleshy, firm, obtusely convex, at length broadly convex to plane, subdiscoid, 5–10 cm. broad; surface glutinous when moist, shining when dry, even, glabrous, raw-sienna to orange-buff (R), unicolorous, not virgate, the margin incurved and cortinate; context compact, white, thick on the disk, the odor and taste mild; lamellae emarginate-adnexed, rather narrow, close, at first cesious to pale-brownish-drab (R), finally clay-colored, the edge erose-serrate; stipe 12–15 mm. thick above, white, firm, solid, fibrillose or floccose-fibrillose, 5–8 cm. long, round-bulbous to clavate-bulbous, the bulb up to 2 cm. thick; spores almond-shaped, punctate-rough, 8–10 × 5–6 μ, pale-rusty-ochraceous.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, among conifers.
DISTRIBUTION: New York; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 142, f. 2;* Gill. Champ. Fr. *pl. 205;* Cooke, Brit. Fungi *pl. 693* (*683*); Ricken, Blätterp. Deutschl. *pl. 41, f. 1;* Grevillea *pl. 102, f. 1.*

61. **Cortinarius substriatus** C. H. Kauffman, sp. nov.

Pileus subfleshy, broadly conic-campanulate, 3–7 cm. broad; surface viscid, glabrous, at first Natal-brown (R), becoming Mikado-brown (R) with a slight purplish tint, fading, striate

at times on the thin margin; lamellae adnate, rounded behind, moderately broad, ventricose, close to crowded, not reaching the margin of pileus, at first tinged violaceous-purplish, at length cinnamon; stipe elongate, tapering from the base to the apex, 8–12 cm. long, 6–8 mm. thick above, twice as thick at the base, dry, stuffed, at first clothed by a very thin, white, evanescent sheath, then subfibrillose, at first distinctly violaceous-purple at the apex, soon fading to pallid, rather slender; spores narrowly ellipsoid, smooth, 9–10 × 5–6 μ, pale-ochraceous under the microscope. (See page 348.)

Type collected on moss, under Douglas fir and hemlock, at Lake Cushman, Olympic Mountains, Washington, October 20, 1915, *C. H. Kauffman* (herb. Univ. Mich.).

62. **Cortinarius decoloratus** Fries, Epicr. Myc. 270. 1838.

Agaricus decoloratus Fries, Syst. Myc. 1: 224. 1821.

Pileus fleshy, convex, then expanded, 3–7 cm. broad; surface buff or pallid-clay-colored, regular, viscid, slightly corrugate when dry; context thin, watery, soft, white; lamellae adnate, sometimes subdecurrent, sinuate, close, moderately broad, cesious or pallid-gray at first, then pale-cinnamon; stipe equal or tapering upward, 5–7 cm. long, 3–8 mm. thick, stuffed, then hollow, whitish, sometimes striate above, obscurely spotted with ochraceous shreds of the veil; spores subglobose to ovoid, almost smooth, 8–9 × 6–7.5 μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in frondose and mixed woods.
DISTRIBUTION: New England to Wisconsin; Colorado; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 729* (*726*); Grevillea *pl. 107, f. 4*.

63. **Cortinarius porphyropus** (Alb. & Schw.) Fries, Epicr. Myc. 271. 1838.

Agaricus porphyropus Alb. & Schw. Consp. Fung. 153. 1805.
Cortinarius porphyropus Ricken, Blätterp. Deutschl. 130. 1912.

Pileus fleshy, convex, then expanded-plane, obtuse, 3–5(–6) cm. broad; surface viscid, soon dry, even, innately virgate, at first clay-tinged, then buffy-brown (R); margin at first inrolled, thin; context rather thin, soft, whitish but changing to blackish-purple (R) when cut or bruised, the odor none, the taste slight; lamellae adnexed, then emarginate or subdecurrent by a tooth, close, moderately broad, vinaceous-purple (R) at first, at length army-brown (R) or darker, changing quickly to blackish-purple (R) when bruised, the edge entire; stipe varying, equal or tapering upward, 4–7(–8) cm. long, 5–10 mm. thick, fragile, spongy-stuffed, subglabrous or fibrillose, becoming sub-hollow, the cortex fibrous and at length toughish, at first vinaceous-purple (R) soon fading to pallid, but quickly blackish-purple when bruised; spores ellipsoid-oblong, smooth, 9–12(–13) × 5–6 μ, pale-brown under the microscope.

TYPE LOCALITY: Lusatia, Germany.
HABITAT: Under birch, etc., in moist places.
DISTRIBUTION: New England and New York, also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 731* (*728*).

64. **Cortinarius infractus** Fries, Epicr. Myc. 261. 1838.

Cortinarius anfractus Fries, Epicr. Myc. 262. 1838.
Agaricus infractus Fries, Syst. Myc. 1: 223. 1821.

Pileus fleshy, convex, then expanded, 5–10 cm. broad; surface viscid, glabrous, even, dark-olive or sooty-olive, then fulvous-tinged, the margin broadly incurved, then spreading and often with a broad zone; context whitish or slightly violaceous-tinged, firm, thick, except on the margin, the taste of the pellicle bitter, the odor slight; lamellae narrowed-adnate, sometimes emarginate or spuriously subdecurrent, crowded to almost subdistant, rather narrow, sometimes broader, dark-olive or sooty-olive, at length umber, the edge crenulate-eroded; stipe 5–9 cm. long, 8–15 mm. thick, solid, clavate or with oval bulb, fibrillose, dull-violaceous above, dingy-whitish to olivaceous below; spores subglobose to ovoid, rough-punctate, 7–8 × 5–6.5 μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in frondose and mixed woods.
DISTRIBUTION: New England to Missouri, and southward to Tennessee; Oregon and Washington; also in Europe.

65. **Cortinarius olivaceus** Peck, Ann. Rep. N. Y. State Mus. **24**: 72. 1872.

Pileus fleshy, convex, then expanded, 3–5 cm. broad; surface glabrous, viscid, dark-brown with a greenish or olivaceous tinge; context grayish; lamellae close, rather broad, at length ventricose, dark-olivaceous at first, then cinnamon; stipe 6–8 cm. long, 6–10 mm. thick, equal, stuffed to hollow, white-violaceous, thickened below, with an oval bulb; spores ellipsoid, very rough, tuberculate, 10–12.5 × 6–7.5 μ.

TYPE LOCALITY: Greig, New York.
HABITAT: On the ground, in woods.
DISTRIBUTION: Known only from the type locality.

66. **Cortinarius glutinosus** Peck, Ann. Rep. N. Y. State Mus. **43**: 64. 1890.

Pileus fleshy, convex, 2.5–7 cm. broad; surface glutinous, brownish-ochraceous, the margin narrowly involute; context yellowish; lamellae adnexed, rather broad, olivaceous; stipe 3–7 cm. long, 6–10 mm. thick, solid, whitish, or pallid, thickened at the base, scarcely bulbous; spores broadly ellipsoid to subglobose, minutely rough, 7–8 × 5.5–6.5 μ.

TYPE LOCALITY: Adirondack Mountains, New York.
HABITAT: On the ground, in coniferous forests.
DISTRIBUTION: New York.

67. **Cortinarius longipes** Peck, Ann. Rep. N. Y. State Mus. **26**: 61. 1874.

Pileus fleshy, convex to expanded, 5–8 cm. broad; surface slightly fibrillose, viscid, yellowish or pale-ochraceous; lamellae close, plane, brownish-olivaceous at first, then cinnamon; stipe elongate, tapering upward, 10–15 cm. long, 6–8 mm. thick, slightly fibrillose, whitish; spores broadly ellipsoid to subglobose, slightly rough, 6–7.5 × 5–6 μ.

TYPE LOCALITY: Croghan, New York.
HABITAT: On the ground, in woods.
DISTRIBUTION: Known only from the type locality.

68. **Cortinarius ophiopus** Peck, Ann. Rep. N. Y. State Mus. **30**: 43. 1878.

Pileus fleshy, convex or subcampanulate, then expanded, sometimes irregular, 5–10 cm. broad; surface viscid, glabrous, reddish-yellow, the paler margin sometimes roughened by adhering patches of the whitish veil; context white; lamellae close, rather broad, brownish-cinnamon, the edge often eroded; stipe 10–15 cm. long, 8–12 mm. thick, equal, long and usually much bent or variously curved, at first shaggy-scaly from the subconcentrically arranged fragments of the copious veil, white or yellowish; spores ellipsoid, inequilateral, 11–12 × 6–7 μ.

TYPE LOCALITY: Maryland, New York.
HABITAT: On the ground, in woods.
DISTRIBUTION: Known only from the type locality.

69. **Cortinarius corruscans** Fries, Epicr. Myc. 271. 1838.

Agaricus corruscans Fries, Syst. Myc. 1: 227. 1821.

Pileus fleshy, soon expanded, regular, obtuse or at length depressed, 5–10 cm. broad; surface viscid, glabrous, even or radiately reticulate under lens from the drying viscidity, irregularly radiate-rimulose on drying, orange-cinnamon (R), the disk pinkish-cinnamon (R) and sometimes hoary, split on the margin; context thick on disk, abruptly thin on margin, white, unchanging, rather firm, the odor and taste none; lamellae adnate-decurrent, markedly narrow, linear, thin, close to crowded, pale-ochraceous, then clay-colored (R), the edge entire; stipe 7–12 cm. long, 7–10(–12) mm. thick, equal or slightly thicker toward base, solid, the apex dilated and more or less striate, fibrillose-glabrescent, the apex subscaly, white within and

without, unchanging; spores minute, narrowly ellipsoid, smooth, 6–7 × 4 μ, alutaceous, *i.e.*, *Hebeloma*-like under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: In woods, mixed with *Magnolia* and *Rhododendron*.
DISTRIBUTION: Tennessee; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 733* (*730*).

70. **Cortinarius virgatus** Peck, Bull. Torrey Club 22: 203. 1895.

Pileus fleshy, hemispheric or convex, obtuse or subumbonate, 8–10 cm. broad; surface scarcely viscid, olivaceous-ochraceous, conspicuously virgate with red fibrils; context thick, dingy-white; lamellae adnexed, subdistant, at first subcinnamon, then ochraceous-red to brown; stipe short, 5–6 cm. long, 15–35 mm. thick, firm, solid, dilated and fibrillose at base, pallid-ochraceous; spores subglobose to broadly ellipsoid, 6–8 × 5–6 μ.

TYPE LOCALITY: Pasadena, California.
HABITAT: On the ground, under oaks.
DISTRIBUTION: Known only from the type locality.

71. **Cortinarius immixtus** C. H. Kauffman, sp. nov.

Pileus fleshy, campanulate-convex, then expanded-plane, obtuse, 5–7 cm. broad; surface glutinous, glabrous, at length somewhat wrinkled by the drying gluten, at first citrine (R) becoming Prout-brown (R) on center, ochraceous-tawny (R) on margin, the margin at first incurved, and white-cortinate; context thick on disk, abruptly thin on margin, whitish, the odor and taste mild; lamellae adnate, then sinuate, close to crowded, moderately broad, 6–8 mm., thin, at first sulphine-yellow (R), finally cinnamon-brown (R), the edge entire; stipe 7–10 cm. long, 7–12 mm. thick, subequal or slightly tapering upward, stuffed, soon hollow at the apex, at first tinged with the same color as the pileus, then white within and without, the apex glabrous and shining, fibrillose elsewhere; spores ventricose-subellipsoid, subacute at ends, somewhat almond-shaped, smooth, 8–10 × 4.5–5.5 μ, rusty-brown under the microscope. (See page 348.)

Type collected on deep mosses, under Douglas fir and hemlock, at Lake Cushman, Olympic Mountains, Washington, October 20, 1915, *C. H. Kauffman* (herb. Univ. Mich.).

72. **Cortinarius percomis** Fries, Epicr. Myc. 260. 1838.

Pileus fleshy, broadly convex, obtuse, 5–7(–8) cm. broad; surface glabrous, even, viscid, chamois (R) when young, then primrose-yellow (R), honey-yellow (R) in age, slightly paler on the margin; context firm, thick on the disk, abruptly thin at the margin, primrose-yellow (R), the odor distinct, penetrating, sweet-aromatic, the taste slight or somewhat disagreeable; lamellae acuminate-adnate, crowded, narrow, sometimes thick and crisped, at first colonial-buff (R) or sulphur-yellow (R), the edge entire; stipe cespitose to subcespitose, 4–8 cm. long, 12–15 mm. thick at apex, at first clavate-bulbous to rounded-bulbous, then sometimes elongate or subventricose, firm, solid, compact, yellowish-white, at first covered by the sulphur-yellow (R) to primrose-yellow (R), thin, universal veil, concolorous within, silky-fibrillose from the whitish cortina, the bulb never marginate; spores almond-shaped, tuberculate, 10–12(–13) × 6–7 μ, rusty-yellow under the microscope, the exospore hyaline.

TYPE LOCALITY: Sweden.
HABITAT: Under spruce, fir, hemlock, etc., in mountain forests.
DISTRIBUTION: Colorado and Washington; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 143, f. 2;* Grevillea *pl. 104, f. 3.*

73. **Cortinarius coloratus** Peck, Ann. Rep. N. Y. State Cab. 23: 105. 1872.

Pileus fleshy, convex, then broadly campanulate and discoid, 5–10 cm. broad; surface bright-reddish-yellow to tawny-orange and shining, becoming dull-testaceous, glabrous, even, sometimes radially cracked on drying, with a viscid pellicle, the margin at first incurved; context whitish, thick except the margin, firm, compact, the odor and taste slight; lamellae adnate at first, becoming emarginate, rather broad, close, rigid becoming crisped on drying, thin,

whitish or pallid at first, then pale-clay-colored to cinnamon-brown, not reaching the margin of the pileus, the edge paler; stipe clavate-bulbous, 5–12 cm. long, 8–12 mm. thick above, 20–30 mm. thick at bulb, solid, firm, at first white and silky-fibrillose from the cortina, white within, slightly lutescent, marked at times by the thin remains of an evanescent, yellowish-tawny universal veil, attached at the base to delicate white mycelial strands; cortina white, cobwebby, not very copious; spores almond-shaped, ellipsoid, distinctly rough, 9–11 × 6–7 μ.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: On the ground, in frondose and coniferous woods.
DISTRIBUTION: New York and Michigan.
ILLUSTRATION: C. H. Kauffman, Agar. Mich. *pl. 74.*

74. **Cortinarius saginus** Fries, Epicr. Myc. 260. 1838.

Agaricus saginus Fries, Syst. Myc. **1**: 226. 1821.

Pileus fleshy, broadly convex-expanded to plane, 9–14 cm. broad; surface viscid, olive-ocher (R) to yellow-ocher (R), becoming honey-yellow (R) to tawny-ocher (R), the disk darker, slightly rusty-streaked, glabrous, even; context whitish, lutescent, the odor and taste mild; lamellae rounded behind, then subdecurrent, broad, 10–12 mm. or more, crowded, pallid but sordid, soon lutescent, ocher-yellow to cinnamon; stipe at first rounded-bulbous, then very elongate, stout, 9–13 cm. long, 10–12 mm. thick, the base thicker, finally subequal above the disappearing bulb, stuffed, dingy-pallid, soon markedly lutescent, streaked with fibrils of copious cortina which is superior, the bulb rarely subemarginate; spores almond-shaped, inequilateral, rough-punctate, 9–11(–12) × 5.5–6.5(–7) μ, ochraceous-rusty under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: In mountain forests, under conifers.
DISTRIBUTION: Washington; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 703 (695)*; Grevillea *pl. 92.*

75. **Cortinarius balteatus** Fries, Epicr. Myc. 257. 1838.

Agaricus balteatus Fries, Obs. Myc. **2**: 138. 1818.

Pileus fleshy, convex-expanded, obtuse, sometimes discoid or somewhat broadly gibbous, 7–10 cm. broad; surface with an adnate cuticle at first viscid, soon dry and shining, then breaking up on the disk in an areolate manner, Kaiser-brown (R) to snuff-brown (R), at first yellow-ocher (R) toward the margin, then clay-colored (R); margin at first incurved and whitish-cortinate (not violaceous in this form); context very thick, compact, white, unchanging, the odor and taste mild; lamellae adnate, then emarginate, close, 9–14 mm. broad, broader in front, thin, whitish at first then ochraceous-buff (R) to clay-colored (R), the edge entire; stipe stout, short, 4–6 cm. long, rarely longer, 1.5–2.5 cm. thick, solid, compact, subequal to oval-bulbous, the apex naked, elsewhere obscurely reticulate or longitudinally striate, at first subcortinate from the white cortina, whitish within and without, not lutescent; spores almond-shaped, tuberculate, 10–12 × 5–6 μ, brownish.

TYPE LOCALITY: Sweden.
HABITAT: Under pine, in the mountains.
DISTRIBUTION: New York and Colorado; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 142, f. 2;* Cooke, Brit. Fungi *pl. 696 (686);* Gill. Champ. Fr. *314 (198).*

76. **Cortinarius phyllophilus** Peck, Bull. N. Y. State Mus. 157: 28. 1912.

Pileus fleshy, convex or nearly plane, 7–12 cm. broad; surface viscid, somewhat shining and slightly innately fibrillose when dry, pale-tawny-ochraceous; context thick, compact, white, the taste mild; lamellae thin, close, yellow at first, becoming brownish-cinnamon, the edge eroded; stipe short, stout, 3–5 cm. long, 1–1.5 cm. thick, firm, abruptly bulbous, silky-fibrillose, whitish with ferruginous stains at the base; spores ellipsoid, pointed at the ends, 10–12 × 5–6 μ.

TYPE LOCALITY: Humphrey Gorge, Lewis County, New York.
HABITAT: Among fallen leaves, in woods.
DISTRIBUTION: Known only from the type locality.

77. **Cortinarius luteo-fuscus** Peck, Ann. Rep. N. Y. State Cab. 23: 106. 1872.

Pileus fleshy, broadly convex, 5–6 cm. broad; surface even, glabrous, viscid, pale-fuscous to smoky-brown; lamellae deeply emarginate, rather broad, rather close, yellow at first, at length cinnamon; stipe 9–10 cm. long, 6–8 mm. thick, equal above, with a rounded-oval bulb below, solid, silky-striate, whitish; spores broadly ellipsoid, obtuse, somewhat rough, 12–13 × 6–7.5 μ.

TYPE LOCALITY: North Elba, Adirondack Mountains, New York.
HABITAT: On the ground, in woods.
DISTRIBUTION: Known only from the type locality.

78. **Cortinarius communis** Peck, Ann. Rep. N. Y. State Cab. **23**: 106. 1872.

Pileus fleshy, convex-expanded, obtuse, 2–6 cm. broad; surface whitish with a gray tinge at first, becoming yellowish or brown in age, subviscid, sometimes reddish, glabrous, the margin decorated at first by white fibrils of the cortina; context slightly bitterish; lamellae emarginate, at length subdecurrent by a tooth, moderately broad, close, white to pallid at first, then pale-ochraceous-cinnamon; stipe 4–6 cm. long, 4–6 mm. thick, stuffed to hollow, equal or nearly so, curved at base, mealy at the apex, subfibrillose, white then yellowish-stained; cortina white; spores ventricose-ellipsoid, smooth, 9–10.5 × 5–6 μ.

TYPE LOCALITY: Center, New York.
HABITAT: On the ground, in open woods.
DISTRIBUTION: New York and Michigan.

79. **Cortinarius violaceus** (L.) Fries, Epicr. Myc. 279. 1838.

Agaricus violaceus L. Sp. Pl. 1173. 1753.

Pileus fleshy, convex, obtuse, subexpanded, 5–12 cm. broad; surface dry, dark-violet-indigo-tinged, covered with villose, minute, suberect tufts or scales, at length metallic-shining; context rather thick, varying gray to dark-violet, not becoming purple when bruised, the odor and taste mild; lamellae adnate, becoming sinuate or emarginate, thick, broad, subdistant, very dark-violet, becoming ashy-cinnamon; stipe long and stout, 7–12 cm. long, 10–15 mm. thick, clavate or clavate-bulbous, dark-violet, fibrillose, spongy in the rounded bulb, violaceous within, the bulb large; spores large, broadly ellipsoid, rough, 12–16 × 7–9 μ (often 16–18 μ, then smoother and more elongate).

TYPE LOCALITY: Sweden.
HABITAT: In deep moss, in coniferous forests.
DISTRIBUTION: New England and Canada to Alabama and Minnesota; Colorado to Idaho; Oregon and Washington; also in Europe.
ILLUSTRATIONS: Fries, Sv. Aetl. Svamp. *pl. 58;* Gill. Champ. Fr. *pl. 319* (*257*); Cooke, Brit. Fungi *pl. 770* (*747*); Pat. Tab. Fung. *f. 127;* Ricken, Blätterp. Deutschl. *pl. 44, f. 4;* Ann. Rep. N. Y. State Mus. 48: *pl. 12;* Bull. Conn. Geol. Nat. Hist. Surv. 15: *pl. 23.*

80. **Cortinarius squamulosus** Peck, Ann. Rep. N. Y. State Cab. **23**: 108. 1872.

Pileus fleshy, hemispheric, then convex to subexpanded and broadly umbonate, 4–10 cm. broad; surface densely appressed-tomentose at first, soon broken up into dense, rather large, fibrillose scales, sometimes warty on the disk, brown and purplish-tinged at first, soon chocolate-brown; context thick on the disk, abruptly thin toward the margin, watery-spongy, pinkish-white to grayish-white at first; the odor somewhat spicy, more marked in age, the taste slight; lamellae adnate, then deeply emarginate, rather broad, close, purplish at first, soon dark-cinnamon to chocolate-brown, the edge minutely flocculose; stipe stout, 8–15 cm. long, 10–20 mm. thick at the apex, swollen near the base into a large, ventricose-clavate bulb, tapering below the bulb, watery-spongy within, at first purplish, soon chocolate-brown, sometimes subscaly, sometimes fibrillose, annulate above by a definite band-like collar, the bulb 2–3 times

as thick; cortina pallid to brownish, closely woven; spores broadly ellipsoid to subspheroid, distinctly rough, 6.5–8.5 × 6–6.5 μ, dark-rusty-brown in mass.

TYPE LOCALITY: Sandlake, New York.
HABITAT: On the ground, in swampy frondose or mixed woods.
DISTRIBUTION: New England to Wisconsin.
ILLUSTRATIONS: Ann. Rep. N. Y. State Cab. **23**: *pl. 3, f. 1–3.*

81. Cortinarius asper Peck, Ann. Rep. N. Y. State Mus. 24: 72. 1872.

Pileus fleshy, firm, hemispheric, then convex, 5–8 cm. broad; surface rough with minute, erect, brown scales, ochraceous; lamellae close, rounded behind and slightly emarginate, dull-violaceous at first, then pale-cinnamon; stipe cespitose, equal, 7–10 cm. long, 6–10 mm. thick, solid, bulbous, fibrillose-scaly, colored like the pileus but smooth and violaceous at the top, violaceous within, the bulb white with an abundant mycelium; spores broadly ellipsoid, 7–7.5 × 5–6 μ.

TYPE LOCALITY: Greig, New York.
HABITAT: On the ground, in cleared places.
DISTRIBUTION: New England and New York.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **24**: *pl. 1, f. 1, 2.*

82. Cortinarius pholideus Fries, Epicr. Myc. 282. 1838.

Agaricus pholideus Fries, Syst. Myc. 1: 219. 1821.

Pileus fleshy, hemispheric-campanulate at first, then expanded, broadly umbonate, 4–8 cm. broad; surface covered by dense, innate, erect or squarrose, tawny (R), cinnamon-brown (R) or blackish-pointed hairy scales, tawny-olive (R) at first, not hygrophanous; context thin, slightly violaceous, soon whitish or sordid-brownish, usually infested with larvae, the odor and taste mild; lamellae narrowly adnexed, moderately broad, close, lilaceous at first, soon clay-colored to brown, the edge entire; stipe 4–8 cm. long (sometimes longer), 5–12 mm. thick, spongy-stuffed and tunneled by larvae, slightly narrowed upward, violaceous or lilac-tinged above the concentric, squarrose, brown scales representing the sheathing universal veil; cortina sparse, fibrillose; spores ovoid, rough-punctate, 6–7.5 × 5–5.5 μ.

TYPE LOCALITY: Sweden.
HABITAT: Around much-decayed logs or debris, in coniferous forests.
DISTRIBUTION: New England to Wisconsin; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 761* (*760*); Grevillea *pl. 117, f. 1;* Ricken, Blätterp. Deutschl. *pl. 46, f. 4;* C. H. Kauffman, Agar. Mich. *pl. 76.*

83. Cortinarius camphoratus Fries, Epicr. Myc. 280. 1838.

Agaricus camphoratus Fries, Syst. Myc. 1: 218. 1821.

Pileus fleshy, at first subhemispheric, then convex to subexpanded, obtuse or obsoletely subumbonate, 5–8 cm. broad; surface at first lavender (R) to deep-lavender (R), in age cinnamon-buff (R), at first silky or subflocculose, glabrescent and at length subshining, even; margin at first incurved, then decurved, silky from the pale-lavender veil; context rather thick on the disk, thin on the margin, at first Rainier-blue (R) fading to drab or whitish, the odor strongly fetid, penetrating, persisting, worse on drying over flame, almost like asafoetida, approaching that of *Claudopus nidulans;* lamellae adnate at first, then emarginate to spuriously subdecurrent, thin, close, 3–6 mm. broad, at first Rainier-blue (R) or slate-violet (R), darker in age from the cinnamon-brown spores, the edge minutely flocculose; stipe clavate-bulbous or clavate-attenuate, often short-pointed below enlargement, 7–10(–12) cm. long, 10–20 mm. or more thick, solid, soon riddled by larvae, at first Rainier-blue at the apex, paler downward, fading like the pileus, whitish at the base within, at first thinly covered by the lavender to grayish universal veil, becoming fibrillose and whitish downward; spores subalmond-shaped, inequilateral, slightly rough, 9–11(–12) × 5–6 μ.

TYPE LOCALITY: Sweden.
HABITAT: Under conifers, in the mountains.
DISTRIBUTION: Adirondack Mountains, New York; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 152, f. 2;* Cooke, Brit. Fungi *pl. 771* (*751*); Gill. Champ. Fr. *pl. 201.*

84. **Cortinarius pyriodorus** C. H. Kauffman, sp. nov.

Pileus fleshy, rather firm, campanulate-convex, then broadly expanded, obtuse or subumbonate, 4–8 cm. broad; surface dry, glabrous and innately silky-fibrillose, shining, even, unicolorous when fresh, at first Hays-lilac (R) to deep-lavender (R), at maturity deep-vinaceous-lavender (R), the color fading slowly or subpersistent; margin at first incurved and decurved, bordered by narrow shreds of the lilaceous veil; context compact and thick on the disk, abruptly thin on the margin, concolorous, the taste mild, the odor moderately strong, penetrating, spicy in fresh plants, of overripe pears or musty apples, but variable, not truly fetid; lamellae adnate, at length subdecurrent, close, distinct, moderately broad, 6–10 mm., tapering in front, at first lilaceous, then purplish or soon cinnamon-brown; stipe rather long and stout, tapering upward from a clavate base, 10–12 cm. thick above, 2 cm. at base, solid, concolorous except the whitish base, the apex lilaceous or lavender within, at first thinly peronate by the appressed, Hays-lilac (R), universal veil, which becomes broken into evanescent paler patches, at length subfibrillose, the bulb whitish or sublutescent within; spores ellipsoid-subfusiform, subacute at ends, scarcely rough, 7.5–9 × 5–5.5 μ, pale-cinnamon under the microscope. (See page 348.)

Type collected on deep moss, in forest of Douglas fir and hemlock, Lake Cushman, Washington, October 15–25, 1915, *C. H. Kauffman* (herb. Univ. Mich.).

DISTRIBUTION: Olympic Mountains, Washington; Cascade Mountains, Oregon; Rocky Mountains, Colorado.

85. **Cortinarius argentatus** Fries, Epicr. Myc. 279. 1838.

Agaricus argentatus Fries, Syst. Myc. **1**: 218. 1821.

Pileus fleshy, convex to almost plane, 5–9 cm. broad; surface silvery-violaceous-whitish, sometimes with a lilac or amethystine tinge, dry, beautifully appressed-silky, even, not umbonate; context whitish or at first violaceous-tinged, thick on the disk, abruptly thin on the margin, the odor mild, the taste slight; lamellae narrowly sinuate-adnate, narrow, close, pale-violaceous, rarely deep-violaceous at first, soon pale-alutaceous-cinnamon, the edge minutely eroded-crenulate; stipe 5–8 cm. long, 10–20 mm. thick, solid, subequal above the ovoid-bulbous or rounded-bulbous base with the bulb sometimes subemarginate and not depressed or sometimes subobsolete, soon silvery-violaceous-whitish, at first somewhat deeper-violet at the apex, concolorous within, at first subfibrillose from the violaceous-white cortina, then innately silky, not at all peronate; spores ellipsoid, slightly rough, 7–9.5 × 5–6 μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in mixed and coniferous forests.
DISTRIBUTION: New York and Michigan; also in Europe.
ILLUSTRATION: Gill. Champ. Fr. *pl. 194.*

86. **Cortinarius alboviolaceus** Fries, Epicr. Myc. 280. 1838.

Agaricus alboviolaceus Fries, Syst. Myc. **1**: 218. 1821.

Pileus fleshy, campanulate, then convex and broadly umbonate, 3–6 cm. broad; surface dry, beautifully appressed-silky, shining, varying pale-violaceous to cesious-buff, soon silvery-white and scarcely violaceous-tinged, even, the margin persistently decurved; context thin on the margin, cesious or violet-tinged; surface differentiated into a thin layer, up to 15 μ thick, composed of narrow, horizontal hyphae about 3 μ in diameter, the odor and taste mild; lamellae at first adnate, then emarginate or slightly subdecurrent, close, moderately broad, varying pale-violet to ashy-purplish at first, soon paler, at length cinnamon-brown, the edge eroded-crenulate; stipe clavate-thickened at or near the base, narrowed upward, 4–8 cm. long, 5–9 mm. thick above, 20 mm. below, spongy-stuffed, usually peronate by the thin, white, appressed, silky-interwoven, soft universal veil, violaceous above and beneath the veil; cortina white; spores ellipsoid-oval to narrow-ellipsoid, scarcely rough, variable in size, 6.5–9 × 4–5 (rarely 10 × 5.5) μ.

TYPE LOCALITY: Sweden.
HABITAT: Among humus, in frondose, mixed, and coniferous forests.
DISTRIBUTION: New England to Minnesota and Canada, and southward to Tennessee and Missouri; Colorado; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 151, f. 3;* Gill. Champ. Fr. *pl. 321 (191);* Cooke, Brit. Fungi *pl. 747 (749);* N. Marsh. Mushr. Book *pl. 14;* Hard, Mushr. *f. 237;* Ricken, Blätterp. Deutschl. *pl. 44, f. 5.*

87. **Cortinarius obliquus** Peck, Bull. N. Y. State Mus. 10: 951. 1902.

Pileus fleshy, broadly convex, subexpanded, 3–6 cm. broad; surface dry, silky-fibrillose, violaceous-white or grayish-white, the margin at first incurved; context thickish on the disk, concolorous, the odor and taste mild; lamellae adnate, thickish, narrow, heliotrope-purple to deep-lavender at first, at length cinnamon-brown, close, obscurely transversely rivulose, the edge minutely crenulate; stipe short and rather stout, 3–6 cm. long, 6–12 mm. thick above, solid, silky-fibrillose, whitish, violet-tinged within and without, equal above the abrupt, depressed-marginate, oblique bulb; spores narrowly ellipsoid, slightly rough, rather variable, 7–9.5 × 4.5–5.5 μ.

TYPE LOCALITY: Bolton, New York.
HABITAT: On the ground, in frondose or mixed woods.
DISTRIBUTION: New England to Wisconsin, North Carolina, and Missouri.
ILLUSTRATION: Bull. N. Y. State Mus. 10: *pl. L, f. 1–5.*

88. **Cortinarius lilacinus** Peck, Ann. Rep. N. Y. State Mus. 26: 61. 1874.

Pileus fleshy, firm, hemispheric, then convex, 5–9 cm. broad; surface minutely silky or glabrous, lilac-colored, the margin at first incurved; context very thick on the disk, compact and firm, tinged with lilac, the odor and taste slight; lamellae adnexed, rounded behind, rather broad, thick, close to subdistant, sometimes transversely rivulose, lilac at first, then cinnamon, the edge entire; stipe stout, 6–12 cm. long, 15–20 mm. thick, with a very large clavate bulb, 2–4 cm. thick, solid, compact, the bulb spongy, fibrillose, lilaceous; spores broadly ellipsoid, rather obtuse, scarcely rough, 8–10 × 4.5–6.5 μ.

TYPE LOCALITY: Croghan, New York.
HABITAT: On mossy ground, in low, mixed or frondose woods.
DISTRIBUTION: New England to Wisconsin and Tennessee.
ILLUSTRATION: C. H. Kauffman, Agar. Mich. *pl. 82.*

89. **Cortinarius Braendlei** Peck, Bull. Torrey Club 32: 79. 1905.

Pileus firm, convex, 7–12 cm. broad; surface silky, brownish-lilac, often varied by yellowish-brown stains, the margin at first incurved and covered by the grayish-white silky cortina; context lilac, especially in the young plant, with the odor of radish; lamellae adnate, slightly rounded behind, narrow, close, eroded on the edge, grayish, tinged with lilac; stipe stout, 5–7 cm. long, 10–15 mm. thick, solid, silky-fibrillose, bulbous, white or whitish, the bulb often pointed below; spores oblong-ellipsoid, obscurely granular, 12–15 × 7–8 μ.

TYPE LOCALITY: Washington, District of Columbia.
HABITAT: Among fallen leaves, in woods.
DISTRIBUTION: Known only from the type locality.

90. **Cortinarius subpulchrifolius** C. H. Kauffman, Agar. Mich. 1: 371. 1918.

Pileus fleshy, firm, subhemispheric at first, then broadly convex to expanded, often gibbous, obtuse, 4–10 cm. broad; surface not hygrophanous, innately silky-tomentose, glabrescent, even, grayish-buff, becoming ochraceous or rusty-stained in age, the margin at first incurved, then spreading and whitened by the veil; context thick, compact, pale-cesious, then whitish, the odor slight, the taste mild; lamellae adnate at first, becoming sinuate-subdecurrent, broad, subventricose, subdistant, at first dull-purple, the color subpersisting, at length cinnamon-umber, thickish, the edge entire; stipe stout, equal, or slightly enlarged below, 5–10 cm. long (often of medium length), 10–15 mm. thick, firm, solid, sheathed by the distinct, appressed, dingy-white universal veil terminating at or above the middle in an evanescent floccose-fibrillose ring, sometimes only marked by the thin subannular patches of this veil, the apex violaceous or pale-drab, whitish to drab within; cortina white, rather copious; spores broadly ellipsoid, distinctly rough-punctate, maturing slowly, 9–10 × 5–6.5 μ, rusty in mass.

TYPE LOCALITY: Ann Arbor, Michigan.
HABITAT: On the ground, in frondose and mixed woods.
DISTRIBUTION: Michigan.

91. Cortinarius pulchrifolius Peck, Ann. Rep. N. Y. State Mus. 33: 20. 1883.

Pileus fleshy, convex or expanded, obtuse, 5–10 cm. broad; surface silky-fibrillose, whitish or reddish-gray, the margin whitened by the veil; lamellae emarginate, broad, subdistant, bright-purple or violet-purple, then umber; stipe 5–10 cm. long, 6–10 mm. thick, solid, cylindric above the clavate or oval bulb, silky-fibrillose, white, often violet-tinged, violaceous within; cortina copious; spores ellipsoid, rough, 10–12.5 × 6.5–7.5 μ.

TYPE LOCALITY: Wading River, New York.
HABITAT: On the ground, in oak woods.
DISTRIBUTION: New England, New York and New Jersey.

92. Cortinarius rimosus Peck, Ann. Rep. N. Y. State Mus. 48: 110. 1897.

Pileus fleshy, firm, convex or plane, 5–10 cm. broad; surface glabrous, at first pale-grayish-violaceous, then tinged reddish-brown, the surface cracking into appressed scales or becoming variously rimose; context whitish; lamellae emarginate, rather broad, distant, subventricose, violaceous at first, becoming brownish-ochraceous; stipe 4–8 cm. long, 8–12 mm. thick, equal to slightly enlarged at base, white and silky from the white veil, violaceous-tinged within; spores ellipsoid, obtuse at ends, rough, 9–12 × 5.5–6.5 μ.

TYPE LOCALITY: Westport, New York.
HABITAT: On grassy places, in thin woods.
DISTRIBUTION: Known only from the type locality.

93. Cortinarius rubrocinereus Peck, Ann. Rep. N. Y. State Mus. 33: 20. 1883.

Pileus fleshy, convex, then expanded, 5–7 cm. broad; surface silky-fibrillose, reddish-cinereous; context at first violaceous; lamellae emarginate, rounded behind, subdistant, dingy-violaceous at first, soon pale-cinnamon; stipe short, 4–5 cm. long, 8–12 mm. thick, solid, ovoid-bulbous, silky-fibrillose, whitish tinged with violet; spores broadly ellipsoid, obtuse at ends, variable in size, 8.5–11.5 (a few up to 14) × 6–7.5 μ.

TYPE LOCALITY: Riverhead, New York.
HABITAT: Sandy soil, in open places.
DISTRIBUTION: Known only from the type locality.

94. Cortinarius annulatus Peck, Ann. Rep. N. Y. State Mus. 43: 65. 1890.

Cortinarius lutescens Peck, Ann. Rep. N. Y. State Mus. 42: 118. 1889.

Pileus fleshy, broadly convex at first, then subexpanded, obtuse, 3–9 cm. broad; surface dry, the disk or entire surface usually covered with innumerable, minute, pointed, erect, floccose, tawny-yellow scales, with a bronze lustre, the margin at first incurved; context thick, whitish, scarcely or not at all hygrophanous, with the odor of radish, the taste mild or slightly astringent; lamellae adnate, becoming emarginate, rather narrow, 4–9 mm., subdistant, distinct, at first pallid-ochraceous, then rusty-cinnamon, rather rigid, the edge paler; stipe clavate, 4–8 cm. long, the apex 8–15 mm. thick, twice as thick below, sometimes subequal, peronate three fourths to the apex by the thin, silky-woven, appressed, pale-tawny or yellowish universal veil terminating above in an obscure ring, solid, yellowish within, whitish and fibrillose above the veil from the white cortina, base whitish, arising from a white mycelium; spores globose, distinctly rough, 6–7 × 5–6 μ, dark rusty-brown under the microscope.

TYPE LOCALITY: Whitehall, New York.
HABITAT: On the ground, in frondose or mixed woods.
DISTRIBUTION: New England to Wisconsin, and southward to North Carolina, Alabama, and Missouri.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. 43: *pl. 2, f. 1–4;* C. H. Kauffman, Agar. Mich. *pl. 78.*

95. **Cortinarius croceocolor** C. H. Kauffman, Bull. Torrey Club 32: 323. 1905.

Pileus fleshy, convex, then expanded, 3–7 cm. broad; surface saffron-yellow, with dense, minute, dark-brown, erect squamules on the disk, scarcely hygrophanous, not striate; context yellowish-white, thick on the disk, thin toward the margin, slightly hygrophanous, scissile; lamellae cadmium-yellow, scarcely subdistant, rather thick, emarginate, rather broad and of uniform width; stipe clavate or clavate-bulbous, 4–8 cm. long, 9–15 mm. thick below, peronate three fourths of its length by the chrome-yellow to saffron-yellow universal veil, paler at the apex, solid, saffron-colored within, soon dingy, attached to strands of yellowish mycelium; spores subspheroid to short-ellipsoid, echinulate, 6.5–8 × 5.5–6.5 μ.

TYPE LOCALITY: Ithaca, New York.
HABITAT: On the ground, in mixed and coniferous forests.
DISTRIBUTION: New England and New York.
ILLUSTRATIONS: Bull. Torrey Club 32: 314. *f. 5;* Jour. Myc. 13: *pl. 93;* C. H. Kauffman, Agar. Mich. *pl. 81.*

96. **Cortinarius callisteus** Fries, Epicr. Myc. 281. 1838.

Agaricus callisteus Fries, Syst. Myc. 1: 228. 1821.

Pileus fleshy, campanulate-convex, subumbonate to umbonate, 4–7(–8) cm. broad; surface glabrous or cuticle at length broken into numerous minute silky scales, moist, apricot-yellow (R) to yellow-ocher (R) when fresh, becoming darker in age and then ochraceous-orange (R) to orange-rufous (R); context thick on the disk, abruptly thin on the margin, rather soft and moist, not hygrophanous, concolorous when fresh, the odor slight; lamellae adnate, then sinuate or broadly emarginate, subdistant, rather broad, subventricose, soon yellow-ocher (R), finally rusty, the edge entire; stipe firm, subcespitose, clavate-bulbous, tapering upward from bulb, 5–9 cm. long, 6–10 mm. thick above, 2–3 times as thick below, stuffed, yellowish within, externally whitish to yellowish at the apex, yellow-ocher (R) or darker elsewhere, often streaked longitudinally with fulvous fibrils; spores subglobose to globose, tuberculate, 7–8.5 × 6–7 μ, dark-rusty-brown under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: In coniferous forests.
DISTRIBUTION: New York to Missouri; Colorado; also in Europe.

97. **Cortinarius ochraceus** Peck, Ann. Rep. N. Y. State Cab. 23: 109. 1872.

Pileus fleshy, convex, broadly subumbonate or gibbous, 5–8 cm. thick; surface glabrous, pale-ochraceous, even or obscurely wrinkled; context thick, whitish; lamellae emarginate, rather broad, subdistant, pallid to pale-ochraceous at first, then rusty-cinnamon; stipe rather stout, clavate or clavate-bulbous, 5–10 cm. long, 8–12 mm. thick, fibrillose, ochraceous above the white appressed sheath of the universal veil, the bulb 20–38 mm. thick; spores broadly ellipsoid, obtuse at ends, slightly rough, 9–11.5 × 6–7.5 μ.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: Under balsam trees, in open places.
DISTRIBUTION: Known only from the type locality.

98. **Cortinarius flavifolius** Peck, Ann. Rep. N. Y. State Mus. 41: 72. 1888.

Cortinarius newfieldiensis Ellis & Ev. N. Am. Fungi *3052.* 1894.

Pileus fleshy, convex, then expanded, almost plane, 8–15 cm. (usually 4–8 cm.) broad; surface creamy-buff at first, sordid-buff to ochraceous or pale-tawny-yellowish in age, appressed-tomentose or minutely fibrillose-scaly, sometimes only silky-tomentulose, the margin at first incurved; context thick, abruptly thin toward the margin, whitish, scarcely hygrophanous but moist; lamellae adnate, then emarginate, subdistant, broad, dull-pale-yellowish at first, then ocher-yellow, finally yellowish-cinnamon or rusty; stipe clavate or clavate-bulbous,

sometimes subequal, 6–12 cm. long, 6–18 mm. thick above, 15-30 mm. below, spongy-solid, covered at first by a thin, silky-woven, appressed, whitish universal veil, at length peronate or becoming naked; cortina white, silky, copious, sometimes forming a rusty-stained ring above the veil; spores spheroid to oval-ellipsoid, with an abrupt, long apiculus (as in species of *Russula*), minutely but distinctly rough, 6–9 × 5–6 μ (including apiculus).

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: On the ground, in frondose and mixed woods.
DISTRIBUTION: New England to Wisconsin, Tennessee, and Missouri.
ILLUSTRATIONS: C. H. Kauffman, Agar. Mich. *pl. 79, 80;* Atk. Stud. Am. Fungi *pl. 45, 46* (as *C. ochroleucus*).

99. **Cortinarius Whitei** Peck; V. White, Bull. Torrey Club 29: 560. 1902.

Pileus fleshy, very firm, rigid-brittle, subhemispheric or irregularly oval, then campanulate to expanded, sometimes subconic-campanulate or subumbonate, 5–10(–13) cm. broad; surface dry, at first minutely flocculose-silky, glabrescent, the coarse cuticle often becoming radially cracked or lacerate-fibrillose toward the margin in age, ochraceous-orange (R) to Mars-yellow (R), somewhat ferruginascent in age; margin often irregular; context concolorous or slightly paler near the lamellae, compact, the odor and taste mild; lamellae ádnate and rounded behind at first, then sinuate-emarginate, rigid and transversely cracked in age, close to subdistant, broad behind, abruptly narrowed in front, at first light-orange-yellow (R), then Sudan-brown (R) or discolored, the edge entire or split; stipe rather long, stout, equal or tapering downward to subventricose, 7–10(–12) cm. long, 10–20 mm. thick, solid, rigid, hard, with a fibrous and tough rind which cracks and peels in age, pale-orange-yellow (R), concolorous within, covered at first by the concolorous, thin, subevanescent universal veil; cortina concolorous; spores subglobose, slightly rough or almost smooth, 7–8(–9) × 6–7 μ, rusty-yellow under the microscope.

TYPE LOCALITY: Maine.
HABITAT: On the ground, in northern mixed forests.
DISTRIBUTION: Northern New England, New York (Adirondack Mountains), Canada, and Michigan; Oregon.

100. **Cortinarius catskillensis** Peck, Ann. Rep. N. Y. State Cab. 23: 109. 1872.

Pileus fleshy, convex or subcampanulate, then subexpanded, even, 5–8 cm. broad; surface grayish-drab (pale-ferruginous?), variegated with minute, scattered, white fibrils; lamellae deeply emarginate, close to subdistant, rather broad, watery-cinnamon at first, becoming darker with age; stipe stout, 6–9 cm. long, 10–20 mm. thick, solid, fibrillose, whitish, clavate-bulbous, tapering upward; spores narrowly ellipsoid, somewhat pointed at one end, 7–8 × –4 4.5 μ.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: On the ground, in open places.
DISTRIBUTION: New York.

101. **Cortinarius caespitosus** Peck, Ann. Rep. N. Y. State Mus. 42: 117. 1889.

Pileus fleshy, firm, convex, often irregular from its crowded mode of growth, 5–10 cm. broad; surface pale-yellow or buff, a little darker on the disk, the margin silky-fibrillose; context white; lamellae adnexed, rounded behind, thin, close, rather broad, whitish at first, then subochraceous; stipe subequal above, 3–7 cm. long, 8–12 mm. thick, with a clavate-bulbous base, silky-fibrillose, floccose-villose at the apex, subannulate, white; spores narrowly ellipsoid, smooth, 8–9.5 × 4–4.5 μ, pale.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: Mossy ground, in open forest.
DISTRIBUTION: New York.

102. **Cortinarius canescens** Peck, Ann. Rep. N. Y. State Mus. 42: 117. 1889.

Pileus fleshy, rather firm, subcampanulate, then convex-expanded to plane, obtuse or obsoletely broadly subumbonate, at length depressed, 4–7(–8) cm. broad; surface moist when fresh, soon dry, even, at first with a thin, appressed, white-silky covering, at length minutely scaly from the innate silky and pale-drab-gray fibrils, light-buff (R) when young, finally cinnamon-buff (R) with a tinge of gray or drab, clay-colored (R) in age; context rather thin on the margin, subscissile, tilleul-buff (R) to pallid, the odor earthy, the taste slightly unpleasant; lamellae adnexed, then emarginate, rounded behind, close to subdistant, broad (up to 10 mm.), thin, at first pallid, soon buckthorn-brown (R) to cinnamon-brown (R), the edge entire; stipe usually tapering upward from a large, soft, spongy, clavate-thickened base, 5–8(–10) cm. long, 8–15 mm. thick, peronate from the appressed, white-silky universal veil, solid, soon tunneled by larvae, pallid or tilleul-buff (R) at the apex and within; cortina white; spores ellipsoid, scarcely subinequilateral, subacute at one end, slightly rough, 10–12 × 5.5–6.5 μ, dark-rusty under the microscope.

TYPE LOCALITY: North Elba, New York.
HABITAT: Under spruce.
DISTRIBUTION: Adirondack Mountains, New York.

103. **Cortinarius suillus** Fries, Epicr. Myc. 281. 1838.

Pileus fleshy, firm, campanulate-convex to subexpanded, obtuse or subumbonate, 8–10 cm. broad; surface dry, innately minutely scaly by the slight laceration of the cuticle, at length flocculose-squamulose, ochraceous-salmon (R) to apricot-buff (R), slightly nigrescent when bruised; context thick, thin on the margin, moist or subhygrophanous when fresh, scissile, fading to pallid or sordid-white, the odor slight, radishy; lamellae adnate, close to subdistant, broad, the shorter gills narrower, ochraceous-tawny (R) to cinnamon-rufous (R), inclined to turn blackish when bruised, the edge entire; stipe stout, 7–10 cm. long, 1.5–2 cm. thick at the apex, firm, spongy-solid within, clavate-bulbous, tapering upward, white or whitish, sordid when bruised, innately silky-fibrillose or with loose fibrils on the surface from the white, rather copious cortina, with a white mycelioid tomentum on the lower part of the bulb, the bulb up to 3 cm. thick; spores ellipsoid, slightly tuberculate, 9–10(–11) × 5–6(–7) μ, brown under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: Under spruce and fir, in higher mountains.
DISTRIBUTION: Colorado; also in Europe.
ILLUSTRATION: Fries, Ic. Hymen. *pl. 152, f. 3.*

104. **Cortinarius bolaris** Fries, Epicr. Myc. 282. 1838.

Agaricus bolaris Fries, Syst. Myc. 1: 228. 1821.

Pileus fleshy, convex-expanded, obsoletely umbonate, 3–6 cm. broad; surface variegated by appressed, pink-red, saffron-red, or cinnabar-red, hairy scales on a white ground, dry, fading, the thin incurved margin surpassing the gills; context white, tinged with creamy-yellow, thin, the odor and taste none; lamellae adnate, close, moderately broad, distinct, pallid, soon pale-cinnamon; stipe tapering upward and subequal, 5–6 cm. long, 5–10 mm. thick, stuffed, then hollow, covered like the pileus by red, fibrillose-hairy, appressed scales, sometimes subglabrescent, the flesh becoming saffron or reddish when bruised; cortina white; spores broadly oval to subspheroid, scarcely rough, 6–7 × 5–5.5 μ.

TYPE LOCALITY: Sweden.
HABITAT: Among decaying leaves, in coniferous and mixed forests.
DISTRIBUTION: New England to Michigan, and southward to Tennessee; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 769 (759);* Gill. Champ. Fr. *pl. 322 (199);* Grevillea *pl. 79;* Ricken, Blätterp. Deutschl. *pl. 46, f. 2;* C. H. Kauffman, Agar. Mich. *pl. 77.*

105. **Cortinarius distortus** C. H. Kauffman, sp. nov.

Pileus fleshy, very fragile, irregularly subhemispheric to campanulate, obtuse, subexpanded, 3–8 cm. broad; surface somewhat moist and white-silky or hoary at first, soon dry,

glabrescent, even, apricot-buff (R) to salmon-buff (R), sometimes darker at maturity; margin at first incurved, then decurved; context rigid-brittle, thick, abruptly thin on the margin, watery-whitish, soon dry, not scissile, the odor and taste mild; lamellae variously attached because of the frequently distorted pileus, adnate or adnexed to almost free (as in *C. camurus*), narrow to moderately wide, sometimes deformed, subdistant, thickish, easily separable from the trama of the pileus, pale-clay-colored (R), then darker; stipe very cespitose, stout, 8–12(–14) cm. long, 10–30 mm. thick, brittle, irregularly subclavate to clavate-bulbous or subequal, often compressed, inflated-gyrose or with irregular longitudinal furrows, more distorted on drying, hollow with cartilaginous context, easily splitting in age, white within and without, becoming sordid-wood-brown in age, the surface with obscure white annular bands from the delicate white universal veil, at length silky-fibrillose throughout; cortina white, fibrillose-silky, rather copious; spores ellipsoid, obtuse, the inner wall pale-sordid-yellowish and punctate-rough, 10–12 × 5.5–6.5 μ. (See page 348.)

Type collected under Douglas fir and hemlock, 900 meters elevation, October 16, 1915, Lake Cushman, Washington, *C. H. Kauffman* (herb. Univ. Mich.).
DISTRIBUTION: Washington.

106. Cortinarius pinetorum C. H. Kauffman, Papers Mich. Acad. 1: 139. 1923.

Cortinarius argentatus pinetorum Fries, Monog. Hymen. Suec. 1: 46. 1857.

Pileus somewhat fleshy, campanulate-convex, obtuse or broadly subumbonate, 3–6(–7) cm. broad; surface glabrous, innately silky, sometimes almost viscid in wet weather, shining, even, silvery-whitish to light-drab (R), becoming deeper-drab on drying; margin thin, at first incurved and white-flocculose-silky, thin, at length decurved; context moderately thick on the disk, watery-mottled, then as if subhygrophanous, the odor slight or penetrating-earthy, the taste slightly disagreeable; lamellae adnexed, rounded behind or at length emarginate, moderately narrow to rather broad, 5–8 mm., becoming ventricose, close to subdistant, thickish, distinct, at first pallid or with tint of drab, then alutaceous; stipe clavate and tapering upward or clavate-subbulbous, becoming elongate-subequal, 4–7 cm. long, 6–12 mm. thick at the apex, concolorous, sheathed at first below the middle by the thin, appressed, whitish universal veil, solid, glabrescent and at length silky-shining; spores subellipsoid, inequilateral, narrower toward one end, almost smooth, 7–8.5(–9) × 5–5.5(–6) μ, pale-yellowish-brown under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: Under pine, spruce, and fir.
DISTRIBUTION: Colorado; also in Europe.
ILLUSTRATION: Cooke, Brit. Fungi *pl. 746*.

107. Cortinarius modestus Peck, Ann. Rep. N. Y. State Mus. 26: 62. 1874.

Pileus fleshy, convex to expanded, 2–4 cm. broad; surface fibrillose, even or slightly rugulose-wrinkled, alutaceous; context white; lamellae close, adnexed, moderately broad, nearly plane, pallid at first, then cinnamon; stipe clavate-bulbous, 5 cm. long, 4 mm. thick above, subfibrillose, hollow or stuffed with white pith, concolorous; spores broadly ellipsoid, 7–8.5 × 5–6 μ.

TYPE LOCALITY: Croghan, New York.
HABITAT: On the ground, in woods.
DISTRIBUTION: Known only from the type locality.

108. Cortinarius brevipes Peck, Ann. Rep. N. Y. State Mus. 41: 71. 1888.

Pileus fleshy, convex, 3–5 cm. broad; surface silky-fibrillose, sordid-white; context yellowish-white; lamellae close, adnexed, pale-violaceous becoming cinnamon; stipe short, rather

stout, 2–3 cm. long, 8–12 mm. thick, silky-fibrillose, whitish, pale-violaceous within, bulbous, the bulb thicker; spores subellipsoid, 9–10 × 5–6 μ.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: On the ground, in woods.
DISTRIBUTION: New York.

109. Cortinarius squarrosus Clements, Bot. Surv. Neb. 5: 11. 1901.

Pileus fleshy, broad, campanulate, then convex, subumbonate, 2.5–3 cm. broad; surface dry, clothed on the disk by dense, squarrose, umber scales, fasciculate-fibrillose on the margin, pallid-umber; lamellae slightly adnate, ventricose, sometimes uncinate, fulvous to umber; stipe subequal, 3–4 cm. long, 5 mm. thick, hollow, fibrous-fleshy, clothed with fulvous-umber, subsquarrose fibrils; cortina fibrillose, umber, fugacious; spores irregularly ellipsoid, smooth, 12 × 6 μ.

TYPE LOCALITY: Little Blue River, Endicott, Nebraska.
HABITAT: Among vegetation on the ground, in woods.
DISTRIBUTION: Known only from the type locality.

110. Cortinarius sanguineus Fries, Epicr. Myc. 288. 1838.

Agaricus sanguineus Fries, Syst. Myc. 1: 229. 1821.

Pileus fleshy, obtuse or umbonate, campanulate, 2–4 cm. broad; surface dry, innately silky or minutely scaly, opaque, dark-blood-red; context blood-red, thin on the margin, the odor mild, the taste slightly that of radish; lamellae adnate, rather broad, close, dark-blood-red; stipe elongate in moss, equal or tapering, 5–10 cm. long, 3–7 mm. thick, stuffed, then hollow, relatively slender, blood-red, darker where bruised; cortina fibrillose, red-tinged; spores narrow-ellipsoid, roughish, 7–8 × 4–5 μ, red-tinged.

TYPE LOCALITY: Sweden.
HABITAT: On deep moss, in coniferous forests.
DISTRIBUTION: New York and Michigan; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 786 (775);* Gill. Champ. Fr. *pl. 326 (246).*

111. Cortinarius cinnabarinus Fries, Epicr. Myc. 287. 1838.

Agaricus purpureus Fries, Syst. Myc. 1: 228. 1821.

Pileus fleshy, campanulate, umbonate, sometimes plane, 3–6 cm. broad; surface innately silky-shining, bright-cinnabar-red, dry, even or rimose, sometimes split on the margin; context pallid-reddish, fading; lamellae adnate, then emarginate, rather broad, ventricose, subdistant, cinnabar-red, then dark-rusty-red, velvety-shimmering, the edge entire; stipe equal or tapering upward, 2–5 cm. long, 4–8 mm. thick, cinnabar-red, shining, stuffed, then hollow, fibrous, fibrillose; cortina concolorous; spores ellipsoid, slightly rough-punctate, 7–9 × 4.5–5.5μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in oak and beech woods.
DISTRIBUTION: Massachusetts to North Carolina, and westward to Wisconsin and Missouri; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 154, f. 4;* Gill. Champ. Fr. *pl. 327 (203);* Pat. Tab. Fung. *f. 647;* Grevillea *pl. 110, f. 4;* Ricken, Blätterp. Deutschl. *pl. 47, f. 5.*

112. Cortinarius anthracinus Fries, Epicr. Myc. 288. 1838.

Pileus somewhat fleshy, dry, campanulate-convex, umbonate or subumbonate, subexpanded, 2–5 cm. broad; surface innately silky-fibrillose or glabrous, shining, pale-chestnut-brown to cinnamon-brown, the margin paler; context dark-reddish, slightly thick at the umbo, thin elsewhere, the odor and taste mild; lamellae broadly adnate, sometimes subdecurrent, close, rather broad, blood-red with a shimmering surface, becoming more intense and darker when bruised, the edge erose-crenulate; stipe equal, 4–6 cm. long, 3–6 mm. thick, stuffed and finally hollow, silky-fibrillose, more or less blood-red, especially toward base, the upper portion

at times cinnamon-yellow, concolorous within; mycelium reddish; spores narrow-ellipsoid, smooth, 6–7 × 4–5 μ, with a reddish tint under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: On mosses, under Douglas fir and hemlock, in mountains.
DISTRIBUTION: Olympic Mountains, Washington; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 787;* Grevillea *pl. 111, f. 1;* Ricken, Blätterp. Deutschl. *pl. 47, f. 3.*

113. **Cortinarius semisanguineus** (Fries) C. H. Kauffman, Bull. Torrey Club **32**: 320. 1905.

Agaricus cinnamomeus semisanguineus Fries, Syst. Myc. 1: 229. 1821.

Pileus fleshy, campanulate-convex, subumbonate (varying to conic-campanulate or broadly hemispheric, often at length expanded and split on the margin), 2–6 cm. broad; surface tawny-yellow to cinnamon-yellow, silky or delicately fibrillose-scaly, sometimes shining-zoned; context dingy-yellowish-white, rather firm, the odor and taste mild; lamellae adnate-subdecurrent, narrow, crowded, cinnabar or blood-red; stipe equal or subequal, 3–6 cm. long (longer on *Sphagnum*), 3–6 mm. thick, solid-fibrous, chrome-yellow to citron-yellow, fibrillose from the yellow or tawny-yellow cortina, elastic; spores ellipsoid, smooth, 5–7 × 3–4 μ.

TYPE LOCALITY: Sweden.
HABITAT: On mosses, sphagnum, etc., in low swampy woods.
DISTRIBUTION: New England and Canada to Virginia and Alabama, and westward to Missouri; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 779;* Gill. Champ. Fr. *pl. 329 (250);* Atk. Stud. Am. Fungi *f. 151;* Ann. Rep. N. Y. State Mus. **48**: *pl. 13, f. 15–20.*

114. **Cortinarius cinnamomeus** Fries, Epicr. Myc. 288. 1838.

Agaricus cinnamomeus Fries, Syst. Myc. 1: 229. 1821.

Pileus fleshy, campanulate-convex, obtuse or subumbonate, the umbo often vanishing, 2–4.5 cm. broad; surface yellowish-cinnamon or yellowish-tawny, silky or minutely and densely scaly from the innate or appressed, yellowish fibrils, shining; context pale-citron or straw-yellow, rarely deep yellow, thin, the odor and taste mild; lamellae adnate, varying to adnexed-emarginate or scarcely subdecurrent, rather broad, close (not truly crowded), cadmium-yellow, citron-yellow, or cinnamon-yellow, shining; stipe equal, 3–8 cm. long, 3–6 mm. thick, often flexuous, chrome to citron-yellow when fresh, darker when handled, fibrillose, stuffed, becoming tubular, olive-cinnamon-yellow within, attached to a yellow mycelium; cortina citron-yellow, fibrillose; spores ellipsoid, short, smooth, 6–7 × 4–4.5 μ (a few 8 × 5 μ).

TYPE LOCALITY: Sweden.
HABITAT: Among humus and debris, in coniferous swamps and forests.
DISTRIBUTION: New England and Canada, southward in the Appalachian Mountains, and westward to Missouri and Minnesota; Colorado, Washington and Oregon; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 777;* Gill. Champ. Fr. *pl. 328 (204);* Michael, Führer Pilzfr. **2**: *pl. 70;* Ricken, Blätterp. Deutschl. *pl. 47, f. 6;* Hard, Mushr. *f. 239;* Ann. Rep. N. Y. State Mus. **48**: *pl. 13, f. 7–14.*

115. **Cortinarius malicorius** Fries, Epicr. Myc. 289. 1838.

Pileus fleshy, obtusely convex to subexpanded, 2–6 cm. broad; surface fulvous or tawny-fulvous, tinged with golden-yellow, silky-tomentose, subzonate in age; context intensely olivaceous when fresh, scissile, thick on the disk, the odor and taste mild; lamellae sinuate or adnate-subdecurrent, close, not broad, rusty-yellow, then dark-golden-fulvous; stipe equal or subequal, 5–7 cm. long, 6–12 mm. thick, becoming hollow, fibrillose from the orange-fulvous cortina, olivaceous-tinged, soon yellow-fulvous, or reddish-stained, olivaceous within; spores short-ellipsoid, slightly rough, 6–7 × 4–4.5 μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in low or swampy coniferous forests.
DISTRIBUTION: New York to Colorado and Washington; also in Europe.
ILLUSTRATION: Fries, Ic. Hymen. *pl. 155, f. 1.*

116. **Cortinarius croceofolius** Peck, Bull. N. Y. State Mus. 150: 26. 1911.

Pileus fleshy, broadly convex or nearly plane, obtuse or obtusely umbonate, 2.5–5 cm. broad; surface dry, slightly fibrillose, especially on the margin, brownish-cinnamon, often paler or saffron-yellow on the margin; context thin, pale-yellow, grayish or dingy when dry; lamellae thin, close, saffron-yellow verging to orange at first, then brownish-cinnamon, often yellow, crenulate on the margin; stipe equal or slightly thickened at the base, 2.5–4 cm. long, 4–6 mm. thick, fibrillose above, saffron-yellow, hollow; cortina concolorous; spores broadly ellipsoid, 6–7 × 4–5 μ.

TYPE LOCALITY: North Elba, Adirondack Mountains, New York.
HABITAT: On mossy ground, in coniferous forests.
DISTRIBUTION: New York.
ILLUSTRATION: Bull. N. Y. State Mus. 150: *pl. 6, f. 1–8.*

117. **Cortinarius aureifolius** Peck, Ann. Rep. N. Y. State Mus. 38: 89. 1885.

Pileus fleshy, convex-campanulate, then plane, 1–4 cm. broad; surface cinnamon-brown or darker, dry, densely fibrillose-tomentose, sometimes scaly, especially on the disk; context thin, yellowish-brown or pallid, the odor that of radish, the taste slight; lamellae adnate, subventricose, broad, close, thin, yellow, then ferruginous-cinnamon; stipe subequal, rather short, 3–6 cm. long, 3–6 mm. thick, solid, fibrillose, yellow, brown within; spores oblong, smooth, 10–12.5 × 5 μ, ochraceous-cinnamon in mass.

TYPE LOCALITY: Karner, New York.
HABITAT: On sandy soil, in pine woods.
DISTRIBUTION: New England and New York.

118. **Cortinarius chrysolitus** C. H. Kauffman, Bull. N. Y. State Mus. 179: 101. 1915.

Cortinarius raphanoides var. C. H. Kauffman, Agar. Mich. 1: 403. 1918.

Pileus slightly fleshy, convex, then plane, 1.5–4 cm. broad; surface densely innately fibrillose-hairy, even, unicolorous, light-brownish-olive (R) to buffy-citrine (R), opaque; margin at first incurved, then decurved; context concolorous, thin on the margin, the odor slight, not that of radish, the taste mild; lamellae adnate, emarginate, rather broad, close, thickish, at first chrysolite-green (R), then yellowish-cinnamon, entire on the edge; stipe slender, equal, 7–10 cm. long, 3–5 mm. thick, stuffed, then hollow, fibrillose, brownish-olive, concolorous within, mycelioid at base and attached to *Sphagnum;* cortina olivaceous; spores ovoid-ellipsoid, slightly rough, 8–9 × 5–6 μ.

TYPE LOCALITY: North Elba, New York.
HABITAT: On deep sphagnum, in swamp of balsam fir.
DISTRIBUTION: Known only from the type locality.

119. **Cortinarius raphanoides** Fries, Epicr. Myc. 290. 1838.

Agaricus raphanoides Fries, Syst. Myc. 1: 230. 1821.

Pileus slightly fleshy, rather firm, dry, campanulate-expanded, broadly umbonate, 2.5–6 cm. broad; surface innately silky-fibrillose, sometimes minutely fibrillose-scaly near the margin, glabrescent, even, at first Saccardo-umber (R) to buffy-citrine (R), finally tawny-olive (R), the margin at length undulate; context concolorous or paler, submembranous toward the margin, the odor slight but penetrating, more or less that of radish, the taste acrid or subacrid; lamellae adnate, then emarginate, close, moderately broad, at first pale-olivaceous-brownish, then cinnamon-brown, sometimes crisped in age, the edge paler; stipe 5–7 cm. long, 6–12 mm. thick, rather firm, stuffed, tapering upward from slightly enlarged base, at length equal, decorated by indistinct, fibrillose, concentric zones, at first obsoletely subperonate, the apex silky,

pallid-olivaceous within and without, the fibrils slightly darker; spores broadly ellipsoid, obtuse at ends, smooth, 7–8(–9) × 5–6 μ.

TYPE LOCALITY: Sweden.
HABITAT: On mosses, under Douglas fir and hemlock, in forests.
DISTRIBUTION: Olympic Mountains, Washington; also in Europe.

120. **Cortinarius subnotatus** Fries, Epicr. Myc. 290. 1838.

Pileus fleshy, campanulate-convex, then expanded, obtuse, orbicular to elliptic, 4–8(–10) cm. broad; surface covered by innate, minute, free-ended, silky scales, or minute tufts, medal-bronze (R) on the disk, sulphine-yellow (R) on the margin, even; margin thin, at first incurved, then spreading and sterile; context concolorous, rather soft and moist, the odor and taste mild; lamellae broadly adnate, narrower in front, at length deeply emarginate, close, thickish, sometimes crisped, at first sulphine-yellow, then darker, not reaching the margin of the pileus; stipe subequal or attenuate upward, 3–7(–8) cm. long, 6–12(–18) mm. thick, spongy within, covered downward by a sulphine-yellow (R), very thin and evanescent sheath, innately silky above; spores subglobose, rough, 7–7.5 × 6–6.5 μ, dark-rusty.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in mixed forests.
DISTRIBUTION: Adirondack Mountains, New York; also in Europe.

121. **Cortinarius clandestinus** C. H. Kauffman, sp. nov.

Pileus slightly fleshy, campanulate-convex, then plane, at first umbonate, at length depressed around the vanishing umbo, 3–6 cm. broad; surface dry, at first covered by dense, minute, clove-brown (R) fibrillose scales, the old-gold (R) ground color appearing later on the margin of the pileus and between scales, the disk at length darker; margin thin, at first incurved, then spreading and soon split, sometimes decorated at first by the olivaceous-yellowish, silky cortina; context thin, except the disk, rather fragile, yellowish-olivaceous, darker at first, the odor distinctly that of radish or sometimes slight; lamellae adnate, then sinuate, usually rather narrow, close, at very first pallid, soon lutescent or with an olivaceous tinge, finally raw-sienna (R), the edge minutely white-flocculose; stipe equal or slightly enlarged below, 6–10 cm. long, rarely longer, 5–10(–12) mm. thick, stuffed, then hollow, obsoletely peronate by a light-green-yellow (R) universal veil, but usually merely fibrillose up to the obscure annular zone, or glabrescent, sublutescent within; spores broadly ellipsoid to subglobose, rounded at the ends, smooth under high magnification, 6–7 × 5–6 μ, dark-rusty-brown under the microscope. (See page 348.)

Type collected among mosses, under Douglas fir and hemlock, Lake Cushman, Olympic Mountains, Washington, October 19, 1915, *C. H. Kauffman* (herb. Univ. Mich.).
DISTRIBUTION: New York, Colorado, and Washington.

122. **Cortinarius luteus** Peck, Ann. Rep. N. Y. State Mus. **43**: 65. 1890.

Pileus fleshy, conic or convex, 2–5 cm. broad; surface unpolished, yellow, often darker on the disk; context yellow; lamellae adnexed, yellow, subdistant, moderately broad; stipe equal, stout, 5–10 cm. long, 10–20 mm. thick, solid (!), silky-fibrillose, yellow; spores subglobose, or broadly ellipsoid, 7.5 × 6–7 μ.

TYPE LOCALITY: Sevey, New York.
HABITAT: On mossy ground, in moist woods.
DISTRIBUTION: Known only from the type locality.

123. **Cortinarius anomalus** Fries, Epicr. Myc. 286. 1838.

Agaricus anomalus Fries, Obs. Myc. 2: 73. 1818.

Pileus fleshy, hemispheric-convex, then subexpanded, obtuse, 2–5 cm. broad; surface even, covered when young by an interwoven appressed gray silkiness, becoming pale-fulvous-alutaceous when expanded, sometimes tinged at first with violaceous-gray, at length glistening with a micaceous sheen; context thin, dark-grayish-violet at first, soon pallid, not truly hygrophanous, the odor and taste mild; lamellae adnate at first, becoming sinuate-emarginate,

not broad, close, at first cesious, violet or grayish-purplish, then alutaceous-brown, the edge lacerate-crenulate; stipe at first clavate, 4–9 cm. long, 10–18 mm. thick, then elongate and slender and 5–10 mm. thick, spongy-stuffed, at first violet, soon dingy-pallid, or only the apex violaceous-tinged, gray-violet within, when fresh dotted with dingy-ochraceous to yellowish scales, glabrescent or fibrillose, soon infested with larvae, elastic on drying; spores almost globose, rough-punctate, 7–9 × 6–7 μ.

TYPE LOCALITY: Sweden.
HABITAT: Among humus and debris, in mixed and coniferous forests.
DISTRIBUTION: New England to Michigan; Colorado; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 154, f. 2;* Cooke, Brit. Fungi *pl. 776* (*772*); Ricken, Blätterp. Deutschl. *pl. 47, f. 1.*

124. **Cortinarius brevissimus** Peck, Ann. Rep. N. Y. State Mus. 41: 71. 1888.

Pileus fleshy, convex, often irregular, 1.5–2.5 cm. broad; surface at first minutely silky, then glabrous, dingy-white to argillaceous; context whitish; lamellae adnexed, close, at first pale-violaceous, then whitish to cinnamon; stipe very short, 1–1.5 cm. long, 6–8 mm. thick, equal, hollow, silky-fibrillose, white, pale-violaceous within; spores broadly ellipsoid, 6–7.5 × 5–6 μ.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: On the ground, in thin woods.
DISTRIBUTION: Known only from the type locality.

125. **Cortinarius basalis** Peck, Ann. Rep. N. Y. State Mus. 33: 20. 1883.

Pileus fleshy, convex, then expanded, 1–2 cm. broad; surface hairy, tawny; context thin; lamellae subventricose, pale-tawny at first, cinnamon when old; stipe short, 2–2.5 cm. long, 5–6 mm. thick, hollow, fibrillose, pallid, or pale-tawny, usually with a slight, webby annulus below the middle of the stipe; spores ellipsoid, smooth, 7–8.5 × 3–4 μ, pale under the microscope.

TYPE LOCALITY: Wading River, New York.
HABITAT: On bare ground, in woods.
DISTRIBUTION: Known only from the type locality.

126. **Cortinarius subtabularis** C. H. Kauffman, Agar. Mich. 1: 392. 1918.

Pileus fleshy, campanulate-convex at first, then plane or obsoletely umbonate, discoid, 2–6 cm. broad; surface dry, cesious or violaceous-drab to silvery-fuscous, silky-shining with white silky fibrils, even; context thin, soon pallid, the odor and taste mild; lamellae adnate, then sinuate, rather broad, close but distinct, ventricose, at first pallid with obscure violaceous tints, at length cinnamon, never truly violet or purplish, the edge entire; stipe 3–5 cm. long, 4–6 mm. thick, equal except a slight, subabrupt, bulbillate base, the apex slightly scurfy, pale-violaceous-drab, the color persistent, silky-fibrillose and shining, sometimes marked at the base by the remnants of the white cortina, stuffed, hollowed by larvae, usually strict, later flexuous or curved; spores ellipsoid, scarcely rough, 9–10 × 5 μ.

TYPE LOCALITY: Ann Arbor, Michigan.
HABITAT: On the ground, in frondose woods.
DISTRIBUTION: Michigan.

127. **Cortinarius castanellus** Peck, Ann. Rep. N. Y. State Mus. 29: 43. 1878.

Pileus fleshy, convex, then expanded, umbonate, 1–2.5 cm. broad; surface innately silky, shining, glabrous, even, dark-cinnamon to chestnut-colored, the umbo blackish, streaked blackish when old; context thin, pallid; lamellae adnate and rounded behind, then emarginate, close, moderately broad, pallid, soon cinnamon-brown; stipe slender, equal or attenuate down-

ward, 4–5 cm. long, 2–4 mm. thick, dingy-white, then fuscous-tinged, stuffed, then hollow, glabrescent; spores ellipsoid, rough, 7–9 × 4.5–6 μ.

TYPE LOCALITY: West Albany, New York.
HABITAT: On the ground, in fields.
DISTRIBUTION: New York and Michigan.

128. **Cortinarius sericipes** Peck, Ann. Rep. N. Y. State Mus. **33**: 20. 1883.

Pileus fleshy, conic to subcampanulate, 1–2.5 cm. broad; surface glabrous, chestnut-colored, often darker on the umbo; lamellae ascending or ventricose, narrowed behind, close, whitish at first, then tawny to tawny-cinnamon, white on the edge; stipe slender, 2–7 cm. long, 2–4 mm. thick, equal, hollow, silky-fibrillose, slightly mealy at the apex, shining, white; spores large, almond-shaped, ventricose, somewhat pointed at the ends, rough, 15–16 × 8–9 μ.

TYPE LOCALITY: Center, New York.
HABITAT: On the ground, in thin moist woods.
DISTRIBUTION: Known only from the type locality.

129. **Cortinarius albidifolius** Peck, Ann. Rep. N. Y. State Mus. **41**: 72. 1888.

Pileus fleshy, convex, subglabrous, 3–5 cm. broad; surface whitish, tinged with yellow or pale-ochraceous, the epidermis sometimes cracking and forming scales; context thin, whitish; lamellae adnate, emarginate, subdistant, whitish at first, then cinnamon; stipe equal or slightly enlarged at base, 5–8 cm. long, 4–8 mm. thick, solid, white but variegated with yellowish floccose scales below, silky-fibrillose above; spores subglobose, 6–7.5 × 5–6 μ.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: On the ground, in woods.
DISTRIBUTION: Known only from the type locality.

130. **Cortinarius colymbadinus** Fries, Epicr. Myc. 289. 1838.

Pileus fleshy, subhemispheric, then campanulate-umbonate, abruptly circularly depressed toward the decurved margin, 3–7(–8) cm. broad, the umbo obtuse; surface at first innately tomentose on the disk, or to the margin in large pilei, glabrescent and silky-shining in age, at first tawny-olive (R), then Dresden-brown (R) to old-gold (R), varying in color when wet; margin even, at length spreading or repand; context thin except the disk, subhygrophanous, concolorous, scissile; lamellae adnate, then emarginate, rather broad, 5–8 mm., narrow in front, distinct, pallid at first, then cinnamon-buff (R) to clay-colored (R); stipe equal or tapering upward, 5–8(–10) cm. long, 8–15 mm. thick, stuffed, innately silky-fibrillose, shining when dry, pallid within and without; universal veil fugacious, sometimes leaving delicate tawny-olivaceous fibrils on the stipe; spores short-ellipsoid, tuberculate, 7–8(–9) × 6–6.5 μ, yellowish under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: Under spruce and fir, in mountains.
DISTRIBUTION: Colorado; also in Europe.
ILLUSTRATION: Fries, Ic. Hymen. *pl. 155, f. 3.*

131. **Cortinarius decumbens** Fries, Epicr. Myc. 284. 1838.

Pileus fleshy, firm but brittle, subcampanulate, then convex, gibbous or very obtuse, 3–5(–7) cm. broad; surface even, glabrous, innately silky, sometimes very slightly viscid, shining when dry, ivory-white (R); margin at first incurved and thickly covered by the copious white but fugacious cortina; context thick, rather soft, very thin on the margin, not hygrophanous, white, the odor and taste mild; lamellae adnate, then subsinuate, close, moderately broad, whitish at first, at length sayal-brown (R), the edge entire or suberose; stipe irregularly clavate-bulbous or tapering upward unevenly, 4–6(–8) cm. long, 5–10(–18) mm. thick above, 10–15 (–30) mm. toward base, frequently decumbent below, brittle, spongy within, finally cavernous, with a cartilaginous rind, glabrous, at first covered by the concolorous, silky-interwoven, thin,

universal veil, at length sordid, white-mycelioid at base; spores subglobose, almost smooth, 7–8.5 × 5–6 μ, pale under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: Under spruce and fir, in mountain forests.
DISTRIBUTION: Colorado; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 816a* (*765a*); Grevillea *pl. 127, f. 3.*

132. Cortinarius torvus Fries, Epicr. Myc. 293. 1838.

Agaricus torvus Fries, Syst. Myc. **1**: 211. 1821.

Pileus fleshy, broadly convex to plane, obtuse or subumbonate, firm, 4–6 cm. broad; surface subhygrophanous, violaceous-fulvous, purplish-brown or copper-brown at first, at length paler, the disk rusty-fulvous, covered with a hoary frostiness, sometimes furfuraceous-scaly, at length glabrous, sometimes radiately wrinkled, often punctate; context at first dull-grayish-purple, at length brownish or pallid, the odor at first slight, sweet-aromatic after crushing the flesh, the taste mild; lamellae at first adnate, then emarginate-adnexed, broad, subdistant, thickish, subrigid, dark-purplish or dull-purplish at first, then dark-cinnamon-umber; stipe clavate-bulbous, tapering upward, 4–7 cm. long (sometimes longer), 7–8 mm. thick above, peronate to or above the middle by the whitish universal veil terminating above in a flaring membranous ring, dull-violaceous and silky above the veil, spongy-solid, the bulb 12–16 mm. thick; spores maturing slowly, ventricose-ellipsoid, rough-tuberculate, 8–11 × 4.5–6 μ, rusty-umber in mass.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, on humus and debris, in conifer and mixed forests.
DISTRIBUTION: New England to Tennessee, Missouri, and Minnesota; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 157;* Cooke, Brit. Fungi *pl. 801* (*794*)*;* Gill. Champ. Fr. *pl. 333* (*251*)*;* Grevillea *pl. 117, f. 2;* Ricken, Blätterp. Deutschl. *pl. 49, f. 6;* C. H. Kauffman, Agar. Mich. *pl. 83.*

133. Cortinarius evernius Fries, Epicr. Myc. 294. 1838.

Agaricus evernius Fries, Syst. Myc. **1**: 212. 1821.

Pileus fleshy, fragile, conic-campanulate, prominently umbonate when expanded, sometimes irregular or gibbous, 3–10 cm. broad; surface hygrophanous, purple-fuscous to brownish-vinaceous (R), faded and silky in dry weather, the margin soon wavy, at first incurved and silky from the veil, glabrescent; context thin, concolorous or violaceous when moist, the odor slightly that of radish; lamellae emarginate, adnate, thickish, broad, rather distant, ventricose, at first violaceous-purple, then cinnamon-brown, the edge whitish; stipe cylindric or attenuate toward base, 10–15 cm. long (rarely 15–20 cm.), 8–20 mm. thick, sometimes flexuous, pale-lavender to deep-violet, more deeply colored at the base, marked by annular shreds of the violaceous, then whitish, universal veil over most of the surface, spongy and solid, concolorous within; cortina fibrillose, whitish, evanescent; spores ellipsoid, slightly rough, 8–9.5 (rarely 10) × 5–6 μ.

TYPE LOCALITY: Sweden.
HABITAT: Among deep moss, on decayed debris or rotten wood, in swampy or moist places, in coniferous forests.
DISTRIBUTION: New England to Michigan; Colorado to Washington and Oregon; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 866* (*798*)*;* Ricken, Blätterp. Deutschl. *pl. 49, f. 2;* Mem. N. Y. State Mus. **3**: *pl. 58, f. 1–7.*

134. Cortinarius lucorum Fries, Hymen. Eur. 377. 1874.

Cortinarius umidicola C. H. Kauffman, Bull. Torrey Club **32**: 322. 1905.
Cortinarius impennis Fries; Ricken, Blätterp. Deutschl. **1**: 171. 1912.
Cortinarius erraticus Peck, Ann. Rep. N. Y. State Mus. **42**: 117. 1889.

Pileus fleshy, hemispheric, then convex-expanded, firm, 5–10 cm. broad (rarely up to 14 cm.); surface hygrophanous, dull-heliotrope-purplish to army-brown (R) at the very first, soon umber and glabrous on the disk, fading to pinkish-buff and covered with innate, whitish, silky fibrils, punctate, the margin persistently incurved and decorated by narrow, whitish, transverse strips from the universal veil; context lavender to drab when young, soon faded to sordid-

whitish, thick on the disk, abruptly thin on the margin, the odor and taste mild; lamellae emarginate with a tooth, very broad, plane, then ventricose, subdistant, thick, at first lavender, soon pale-tan to cinnamon, the edge subserratulate, concolorous; stipe subequal, 6–10 cm. (rarely 10–13 cm.) long, 10–20 mm. thick, usually thickened below, sometimes narrowed below or curved, always stout, solid, lavender above the woven, sordid-white universal veil at first covering the lower part as a sheath, but soon breaking up so as to leave a band-like annulus halfway or lower on the stem, or forming adnate patches, concolorous, lavender within and soon cavernous from grubs; cortina violaceous-white; spores ellipsoid-ovoid, slightly rough, 7–9 × 5–6 μ.

TYPE LOCALITY: Ithaca, New York.
HABITAT: On the ground, in swampy places, in frondose or coniferous forests.
DISTRIBUTION: New York to Wisconsin; Washington; also in Sweden.
ILLUSTRATIONS: Bull. Torrey Club **32**: 312. *f. 4;* Jour. Myc. **13**: *pl. 94.*

135. **Cortinarius plumiger** Fries, Epicr. Myc. 294. 1838.

Pileus fleshy, firm, campanulate, rarely conic-campanulate, obtuse or subumbonate, expanded, 5–12 cm. broad; surface with a dense, appressed, fibrillose-tomentose or fibrillose-hairy, superficial covering, hygrophanous, fading, sepia-brown at first, then light-pinkish-cinnamon (R), the margin often decorated by narrow shreds of the universal veil; context thick on the disk, thin toward the margin, pallid-brownish when moist, soon faded, the odor and taste slight; lamellae adnate, then emarginate, close, rather broad, pallid at first, rarely faintly cesious-violaceous-tinged, then clay-colored (R) to Mikado-brown (R), the edge subcrenulate or entire; stipe clavate-bulbous, stout, 5–10 cm. long, 10–18 mm. thick above, at length subcylindric above, spongy within but firm, very fibrillose, grayish-blue-violet (R) when fresh, quickly fading, concolorous within, at length pallid or dingy; cortina whitish, thin; universal veil white at first, leaving thin subannular shreds or a slight annulus on the lower part of the stipe, soon sordid-brownish; spores ellipsoid, slightly rough, 8–10 × 5–6 μ, pale-ochraceous under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in coniferous forests.
DISTRIBUTION: Adirondack Mountains, New York; also in Europe.

136. **Cortinarius deceptivus** C. H. Kauffman, Bull. Torrey Club 32: 325. 1905.

Pileus fleshy, suborbicular to hemispheric, becoming convex-campanulate, 2–7 cm. broad; surface subhygrophanous, fawn-colored tinged with lavender, fading to light-tan, the disk alutaceous-buff, covered with minute, brownish scales when young, becoming glabrous, rugulose in age; context thin except on the disk, rather spongy, lavender when young, then pallid or sordid-tan; lamellae thick, moderately close, adnate, emarginate-narrowed in front, lavender at first, pale-tan when old, 3–5 mm. broad; stipe rather stout and clavate at first, then elongate and slender, 3–6 cm. long, 4–8 mm. thick, solid, at first covered by the thick, fibrillose universal veil, this lavender, soon fading to whitish, at length remaining as oblique, fugacious, brownish scales or partial rings, terminating above in the cortina; spores subspheroid to broadly ellipsoid, rough, 7–9.5 × 6–7 μ.

TYPE LOCALITY: Ithaca, New York.
HABITAT: On moist humus or debris, in hemlock or mixed woods.
DISTRIBUTION: New England to Wisconsin.
ILLUSTRATIONS: Bull. Torrey Club **32**: 324. *f. 7;* C. F. Kauffman, Agar. Mich. *pl. 84.*

137. **Cortinarius rubripes** C. H. Kauffman, Rep. Mich. Acad. 8: 32. 1906.

Cortinarius rubripes Peck, Bull. N. Y. State Mus. 105: 16. 1906.

Pileus fleshy, convex-campanulate, then expanded, obtuse or subumbonate, 5–12 cm. broad; surface hygrophanous, watery-cinnamon when moist, or rufous-tinged, more or less ferruginous-stained, fading to pinkish-ochraceous in zones from the umbo outward, at length

with innate silky fibrils, sometimes wavy and irregular, glabrescent, even; context thin except on the disk, scissile, with a rufous tinge; lamellae subdistant, distinct, rather rigid, adnate, seceding in age, often with hoary fibrils at the point of attachment to the stipe, pale-cinereous-purple or rufous-tinged at first, soon reddish-cinnamon, the edge entire; stipe 5–7.5 cm. long, 5–15 mm. thick at the apex of bulb, with an oval or clavate bulb which is deep-brick-red to vermilion, paler upwards, elastic, spongy-stuffed within, glabrous, except for the fibrillose remains of the thin, evanescent, pale-reddish, universal veil; spores ellipsoid, smooth, granular within, 8–9 × 4–5 μ; mycelium brick-red and sometimes forming mycorrhizas on roots of forest trees.

Type locality: Ann Arbor, Michigan.
Habitat: On the ground, in frondose woods.
Distribution: New York to Wisconsin.
Illustrations: Bot. Gaz. **42**: 210. *f. 1;* Jour. Myc. **13**: *pl. 100.*

138. **Cortinarius injucundus** Fries, Epicr. Myc. 298. 1838.

Pileus fleshy, at first obtusely campanulate, then broadly campanulate-convex, obtuse or broadly subumbonate, 4–7 cm. broad; surface innately fibrillose, snuff-brown (R) to sayal-brown (R), fading; margin at first incurved and silky-white from the cortina; context thick on the center, rather thin towards the margin, hygrophanous, sometimes tinged bluish-violet at the very first, soon concolorous and fading to watery-white, the odor and taste slight; lamellae adnate, then emarginate with a decurrent tooth, 8–9 mm. broad behind, narrower in front, subdistant, thick, at the first pale-bluish-violet, then pale-brownish, finally clay-colored (R) to tawny-olive (R) or darker, the edge flocculose-crenulate; stipe 5–8 cm. long, 7–15(–18) mm. thick, clavate-bulbous, abruptly short-pointed below the bulb, sometimes compressed, spongy-solid, at first subperonate at and above the bulb by the brown, concolorous universal veil, the apex at first bluish-violaceous within and without, white-mycelioid at base, at length loosely fibrillose and faded to vinaceous-buff (R) or silky-shining; spores broadly ellipsoid, tuberculate, 8–10 × 5–7 μ, dark-brown under the microscope.

Type locality: Russia.
Habitat: Under spruce and fir, in high mountains.
Distribution: Colorado; also in Europe.
Illustration: Cooke, Brit. Fungi *pl. 823* (*809*).

139. **Cortinarius alutaceofulvus** Britz. Bot. Centr. **80**: 65. 1899.

Pileus fleshy, rather brittle, hemispheric-ovoid at first, then convex-expanded, obtuse or broadly subumbonate, 5–8(–10) cm. broad; surface innately silky, snuff-brown (R) when moist, clay-colored (R) after losing moisture, hygrophanous, punctate; margin at first incurved, more or less white-silky-spotted from the cortina; context thick on the center, rather thin elsewhere, with rather soft texture, watery-brown when moist, hygrophanous, fading, the odor and taste mild; lamellae adnate, then emarginate, rather broad, subdistant, at first pallid, then clay-colored (R), becoming soft and fragile; stipe stout, 6–9(–10) cm. long, 1–2 cm. thick at the apex, twice as thick below, spongy-solid, clavate-enlarged at base, at first with thin, whitish subzonate remains of the universal veil or slightly fibrillose with loose white fibrils, dingy-pallid, often with a thick tomentum toward base, becoming sordid from handling; spores globose to subglobose, somewhat tuberculate, 6–7.5 × 5–6 μ, dark-brown under the microscope.

Type locality: Bavaria.
Habitat: Under spruce and fir, in the higher mountain forests.
Distribution: Adirondack Mountains, New York; Colorado; also in Europe.

140. **Cortinarius brunneofulvus** Fries, Epicr. Myc. 298. 1838.

Pileus convex, 3–7 cm. broad; surface hygrophanous, dark-watery-brown, glabrous, even, subvirgate on drying, the margin white from the veil, decurved; context concolorous when moist, thick on the disk, scissile; lamellae adnate, then sinuate, distinct, thickish, broad, subdistant, soon brown to dark-umber-cinnamon; stipe 5–8 cm. long, 10–15 mm. thick, narrower

upward from a clavate or bulbous base, solid, brown, longitudinally streaked with paler fibrils, annulate by a distinct whitish band at or below the middle, from the whitish, universal veil; spores ellipsoid, distinctly tuberculate, 10–12 × 6–7 μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in coniferous forest.
DISTRIBUTION: Colorado to Washington and Oregon; also in Europe.
ILLUSTRATION: Ricken, Blätterp. Deutschl. *pl. 50, f. 4* (as *C. brunneus*).

141. **Cortinarius armillatus** Fries, Epicr. Myc. 295. 1838.

Agaricus armillatus Fries, Syst. Myc. 1: 214. 1821.

Pileus fleshy, campanulate with a decurved margin, then expanded, 5–12 cm. broad; surface not truly hygrophanous, tawny-rufescent to red-brick-colored, moist when fresh, innately fibrillose or minutely scaly, with shreds of the universal veil often clinging to the margin, sometimes glabrescent; context rather spongy, not very thick considering its size, dingy-pallid, the odor more or less that of radish, the taste mild; lamellae adnate, sometimes sinuate and uncinate, broad, distant, pale-cinnamon at first, then dark-rusty-brown; stipe 7–14 cm. long, 10–20 mm. thick at the apex, up to 35 mm. thick below, clavate or elongate-bulbous, solid, firm, fibrillose, brownish or pale-tawny-rufescent, encircled by several cinnabar-red zones of bands from the rather membranous, red, universal veil; cortina at first whitish, collapsing and forming a slight annulus colored by the spores; spores ellipsoid, rough-tuberculate, 10–12 × 5–6.5 μ; mycelium whitish.

TYPE LOCALITY: Sweden.
HABITAT: Among humus and decayed debris, in coniferous forests.
DISTRIBUTION: New England and Canada to Pennsylvania and Minnesota; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 158;* Cooke, Brit. Fungi *pl. 802* (*800*); Gill. Champ. Fr. *pl. 335* (*197*); Ricken, Blätterp. Deutschl. *pl. 48, f. 5;* Michael, Führer Pilzfr. 2: *pl. 71;* N. Marsh. Mushr. Book *pl. 32;* Hard, Mushr. *pl. 243;* C. H. Kauffman, Agar. Mich. *pl. 85–86.*

142. **Cortinarius griseus** Peck, Ann. Rep. N. Y. State Mus. 41: 72. 1888.

Pileus convex, obtuse, or gibbous, 3–7.5 cm. broad; surface fibrillose-scaly with grayish hairs or fibrils, pale-gray when moist; lamellae adnexed, subdistant, at first pallid, then brownish-ochraceous; stipe 5–7.5 cm. long, 6–12 mm. thick, tapering upward from a thickened or bulbous base, silky-fibrillose, whitish; spores broadly ellipsoid, obtuse, 10–12 × 6–7 μ.

TYPE LOCALITY: Wittenberg Mountains, New York.
HABITAT: On mossy ground, under balsam fir.
DISTRIBUTION: Known only from the type locality.

143. **Cortinarius bivelus** Fries, Epicr. Myc. 292. 1838.

Pileus fleshy, campanulate-convex, then expanded, 5–10 cm. broad, obtuse or subumbonate, the umbo broad and disappearing; surface glabrous, not canescent, moist and soft when fresh, but scarcely hygrophanous, at length somewhat shining or subrimose in spots, cinnamon-brown (R) or ochraceous-rufous (R) to ochraceous-tawny (R), sometimes darker, the margin very slightly silky; context moderately thick, thin on the margin, at length dingy-whitish, the odor rather indistinct; lamellae adnate or subemarginate, at first close to crowded, becoming more distinct, moderately broad, tawny-cinnamon, at first brownish; stipe 4–8 cm. long, 8–15 mm. thick, clavate, clavate-bulbous or elongate, stout, solid or spongy, often soon hollowed by grubs, dingy-whitish, at first covered by a peronate villose and soft veil which may form evanescent floccose rings; cortina slight; spores variable, almost smooth, 10–12 × 5.5–7 μ, dark-rusty-brown under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: In mixed forests, on mossy ground.
DISTRIBUTION: New York to Michigan; Colorado; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 156, f. 1;* Cooke, Brit. Fungi *pl. 852* (*789*); Grevillea *pl. 111, f. 7.*

144. **Cortinarius laniger** Fries, Epicr. Myc. 292. 1838.

Pileus fleshy, campanulate-convex to convex-plane, obtuse or obsoletely subumbonate, 4–11 cm. broad; surface at first hoary-canescent or with appressed superficial silky-white fibrils, at length glabrous, scarcely hygrophanous, at first chestnut (R) to testaceous (R), varying to paler shades, even; margin whitish-silky; context rather compact, thick, especially on the disk, pallid but usually tinged testaceous (R), the odor not prominent in American form; lamellae adnate, becoming emarginate, at first close to crowded, later spuriously subdistant because of the less evident shorter gills, moderately broad, 5–9 mm., at first dusky-brown, then ferruginous (R) to tawny (R) or ochraceous-tawny (R); stipe clavate to clavate-bulbous or at length elongate-subequal, stout, 8–10 cm. long, 10–20 mm. thick, solid or at length spongy within, soon hollowed by grubs, whitish within, tomentose on the enlarged base, the tomentum continuous upward, but thinner and villose, at length frequently leaving whitish zones on the middle and below; cortina rather copious; spores ellipsoid, almost smooth, 8–11 × 5–6 μ, variable in size, rusty-brown under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: Under conifers, in the northern forests, mostly in the mountains.
DISTRIBUTION: New York to Michigan; Colorado, Oregon and Washington; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 156, f. 2;* Cooke, Brit. Fungi *pl. 800* (*788*)*;* Gill. Champ. Fr. *pl. 330* (*230*).

145. **Cortinarius bulbosus** Fries, Epicr. Myc. 292. 1838.

Pileus fleshy, at first oval-subhemispheric, then campanulate-expanded, broadly subumbonate, obtuse, 5–7(–8) cm. broad; surface even, covered by a thin, webby, appressed, superficial white silkiness, light-ochraceous-salmon (R) to dingy-ochraceous-salmon (R), more or less variegated with wood-brown (R), especially on the umbo or disk; margin at first involute, at length broadly decurved, thin and whitened by the veil; context compact on the disk, brittle in age, concolorous when moist, soon whitish, the odor and taste earthy, scarcely subnauseous; lamellae adnate, sometimes emarginate or with a decurrent tooth, rather close, distinct, varying from moderately narrow to quite broad in large plants, at very first light-ochraceous-buff (R), soon tawny (R) or darker in age, never with violaceous tints, the edge entire; stipe clavate-bulbous, 5–7 cm. long, 10–18(–26) mm. thick above the large bulb, solid, tapering upward, paler than the pileus, at first covered by silky interwoven white fibrils, sometimes subperonate, at length sordid and superficially fibrillose-silky, corticated, concolorous within; spores short-ellipsoid, scarcely rough, 7–8(–9) × 4.5–5.5(–6) μ.

TYPE LOCALITY: Sweden.
HABITAT: Under maple, birch, and conifers, in mixed forests.
DISTRIBUTION: Adirondack Mountains, New York; Cascade Mountains, Oregon and Washington; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 834* (*790*)*;* Ricken, Blätterp. Deutschl. *pl. 50, f. 2.*

146. **Cortinarius Morrisii** Peck, Bull. Torrey Club **32**: 79. 1905.

Pileus fleshy, convex, then campanulate-expanded, 3–10 cm. broad; surface hygrophanous, dark-ochraceous or tawny-ochraceous, covered with minute, silky fibrils, radially rugose at times; margin wavy or irregular; context thin except on the disk, yellowish, the odor slightly that of radish; lamellae adnate, then emarginate-adnexed, rounded behind, broad, subdistant, yellow at first, then rusty-cinnamon, the edge eroded; stipe equal or subequal, 6–10 cm. long, 8–20 mm. thick, stout, solid, fibrous-fleshy, yellow within, whitish or pale-yellow above, yellow to ochraceous and becoming ferruginous to blackish-umber below, imperfectly annulate by adnate shreds of the yellowish universal veil; spores oval or broadly ellipsoid, slightly rough, with an oil-globule, 7–9 × 5.5–6 μ (rarely up to 10 × 7 μ).

TYPE LOCALITY: Ellis, Massachusetts.
HABITAT: On the ground, in coniferous or mixed woods.
DISTRIBUTION: New England.

147. **Cortinarius gentilis** Fries, Epicr. Myc. 297. 1838.

Pileus slightly fleshy, conic-campanulate at the very first, then campanulate and sub-expanded or repand in age, usually abruptly umbonate, sometimes obtuse, the umbo small and

acute, or prominent and more or less obtuse, 2–5 cm. broad; surface entirely glabrous when moist, silky-shining when dry, hygrophanous, Sudan-brown (R) to cinnamon-rufous (R) when moist, changing markedly on losing moisture and becoming wax-yellow (R) to amber-yellow (R) or paler, even; margin at first incurved and silky-cortinate or spotted by the yellowish shreds of the veil; context thin and equal except the umbo, scissile, hygrophanous, concolorous, fading, the odor none or slightly radishy, the taste mild; lamellae broadly adnate, 6–9 mm. broad, subdistant at first, finally very distant, thick and venose-connected, cinnamon (R) at first, then darker, antique-brown (R), the edge flocculose; stipe 5–9(–10) cm. long, 3–5(–7) mm. thick, strict at first, then flexuous and undulate, equal or tapering upward or downward, sometimes subradicating, slender, stuffed, then hollow, the cortex cartilaginous, naked at the apex, fibrillose-silky elsewhere, cingulate in the middle or zoned with amber-yellow (R) zones, antique-brown (R) when moist, concolorous within; universal veil thin, interwoven, yellowish to yellow-ocher; spores broadly ellipsoid, slightly rough, 8–9(–10) × 6–7 μ, yellow under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: On deep moss or debris, under spruce and fir, in the higher mountains.
DISTRIBUTION: Colorado; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 159, f. 2;* Cooke, Brit. Fungi *pl. 806* (*804*); Grevillea *pl. 84, f. 3;* Ricken, Blätterp. Deutschl. *pl. 48, f. 4.*

148. Cortinarius distans Peck, Ann. Rep. N. Y. State Cab. 23: 111. 1872.

Cortinarius furfurellus Peck, Ann. Rep. N. Y. State Mus. 32: 31. 1880.

Pileus fleshy, campanulate, sometimes obtusely conic at first, then campanulate-expanded umbonate, 2–5 cm. broad; surface minutely furfuraceous-scaly, hygrophanous, watery-cinnamon to bay-brown when moist, tawny or subferruginous when dry; margin usually deflexed, even, often splitting radially; context thin, brittle, sordid, brown, then dull-yellowish, the odor sometimes slightly that of radish, the taste mild; lamellae adnate, then sinuate, distant, broad, rigid, thick, brownish or tawny-yellow at first, then dark-cinnamon; stipe variously thickened to equal, 4–8 cm. long, 5–12 mm. thick, often attenuate below and curved, stuffed, fibrillose, watery-brown and unicolorous when moist, the universal veil at first concolorous but on breaking up leaving a whitish, median, somewhat persistent annular zone; cortina whitish, fibrillose; spores ovoid, rough-tuberculate, 6–8 × 5–6 μ.

TYPE LOCALITY: Greenbush, New York.
HABITAT: On grassy ground, in frondose and coniferous woods.
DISTRIBUTION: New England to Virginia, Minnesota, and Missouri.
ILLUSTRATION: C. H. Kauffman, Agar. Mich. *pl. 88.*

149. Cortinarius hinnuleus Fries, Epicr. Myc. 296. 1838.

Pileus fleshy, campanulate at first, then expanded and recurved, subumbonate, 3–6 cm. broad; surface rusty-ochraceous or yellowish-tawny, variegated with rusty stains in age, very hygrophanous, paler when dry, glabrous; context thin, watery-soft, fragile when fresh, the odor none; lamellae adnate-emarginate, broad, subdistant, pale-yellowish-fulvous at first, stained rusty in age, the edge minutely lacerate; stipe 5–7 cm. long, 4–7 mm. thick, rather slender, unequal, soft and fragile, easily split longitudinally, stuffed, curved, yellowish-pallid becoming dingy, glabrescent, cingulate when fresh by a white zone about the middle; spores broadly ellipsoid, scarcely rough, 7–9.5 × 5–6 μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in woods, among decayed debris.
DISTRIBUTION: Michigan; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 805* (*803*); Gill. Champ. Fr. *pl. 334* (*227*); Pat. Tab. Fung. *f. 648;* Ricken, Blätterp. Deutschl. *pl. 48, f. 3.*

150. Cortinarius mammosus C. H. Kauffman, Agar. Mich. 1: 415. 1918.

Pileus fleshy, conic-campanulate at first, then expanded and obtusely umbonate, 2–8 cm. (mostly 4–6 cm.) broad; surface hygrophanous, fawn-colored to brownish-cinnamon, scarcely

tinged with olivaceous, subferruginous on the umbo when dry, beautifully silky-shining, glabrescent; context thin except on the disk, concolorous when moist, pallid when dry; lamellae adnate, becoming emarginate, subventricose, moderately broad, close to somewhat subdistant, at first pallid with a tinge of fawn color, then pale-cinnamon-umber, the edge even; stipe 5–9 cm. long, 5–8 mm. thick, tapering upward from a subclavate base or almost equal, pale-brownish, paler above, subannulate or with thin, concentric, fawn-colored zones from the universal veil, sometimes abruptly pointed below, stuffed; spores broadly ellipsoid, obtuse, slightly rough, 7–8.5 × 5–6 μ.

Type locality: Chelsea, Michigan.
Habitat: Among mosses and debris, in sphagnum swamps.
Distribution: Michigan.

151. **Cortinarius scutulatus** Fries, Epicr. Myc. 294. 1838.

Agaricus scutulatus Fries, Syst. Myc. 1: 211. 1821.

Pileus fleshy, at first subhemispheric and sometimes gibbous, then campanulate, firm, brittle, 2–4 cm. broad; surface hygrophanous, dark-purplish-chestnut or smoky-violet-umber, unicolorous, becoming canescent with grayish-white innate fibrils, the inflexed margin at first silky; context concolorous under the cuticle, soon whitish elsewhere, the odor none; lamellae adnate, then emarginate, rather broad, subdistant, thickish and rigid, at first pale-smoky-purple, then dark-rusty-umber; stipe equal or subattenuate below, rather stout, 3–7 cm. long, 4–10 mm. thick, sometimes slender, rigid, thinly peronate at first by the grayish-white or purple-tinged universal veil, soon subannulate by the breaking up of the veil, at length silky-fibrillose, solid; cortina whitish; spores short, ellipsoid, almost smooth, 7–8 × 4–4.5 μ.

Type locality: Sweden.
Habitat: On sandy ground, in woods.
Distribution: Michigan; also in Europe.
Illustrations: Fries, Ic. Hymen. *pl. 158;* Cooke, Brit. Fungi *pl. 820a* (*796*); Gill. Champ. Fr. *pl. 331* (*249*); Ricken, Blätterp. Deutschl. *pl. 49, f. 1.*

152. **Cortinarius adustus** Peck, Ann. Rep. N. Y. State Mus. 42: 118. 1889.

Pileus broadly campanulate or convex, obtuse, 2–3.5 cm. broad; surface hygrophanous, bay-brown when moist, sometimes canescent on the margin, paler when dry, smoky-brown with age and generally rimose-scaly; context yellowish-gray; lamellae subfree, rather thick, distant, purplish-brown; stipe equal, 2–8 cm. long, 6–10 mm. thick, stuffed or hollow, fibrillose, brownish with a white mycelioid coating at the base, colored within like the flesh of the pileus; spores broadly ellipsoid, 8–10 × 5.5–6.5 μ.

Type locality: North Elba, Adirondack Mountains, New York.
Habitat: On the ground, in coniferous forests.
Distribution: Known only from the type locality.

153. **Cortinarius periscelis** Fries, Epicr. Myc. 300. 1838.

Pileus fleshy on umbo, submembranous on the margin, rather firm, campanulate-convex, umbonate, the umbo obtuse, 2–5 cm. broad; surface at first dusky-drab (R), hygrophanous, fading to light-buff (R), silky, especially on the margin, even; margin decurved; context thick on the disk, at first grayish-lavender (R), fading, the odor slight, the taste mild; lamellae adnexed, rounded behind, at length emarginate, close, narrow to moderately broad, thickish, at first vinaceous-brown (R), finally russet (R), the edge entire; stipe equal, 4–8 cm. long, 4–5 mm. thick, at first dark-grayish-lavender (R), then paler, stuffed, then hollow, concolorous within, silky-fibrillose from the delicate universal veil, the veil turning brownish or subfuscous; cortina pale-grayish-lavender (R); spores ellipsoid, smooth, 9–10 × 5–5.5 μ, pale-subcinnamon under the microscope.

Type locality: Sweden.
Habitat: In mossy cedar swamps.
Distribution: Adirondack Mountains, New York; also in Europe.
Illustration: Cooke, Brit. Fungi *pl. 838* (*816*).

154. **Cortinarius subflexipes** Peck, Ann. Rep. N. Y. State Mus. **41**: 73. 1888.

Pileus slightly fleshy, conic, then campanulate and subacutely umbonate, 1–2 cm. broad; surface glabrous, hygrophanous, blackish-brown and the thin margin incurved and whitened by the veil when moist, subochraceous when dry; context concolorous, thin; lamellae adnexed, thin, close, rather broad, ventricose, at first clay-colored and violaceous-tinged, then cinnamon; stipe equal, 3–6 cm. long, 2–4 mm. thick, slender, flexuous, silky-shining, violaceous within, subannulate by the whitish universal veil, pale-violaceous when young, especially above the annulus, pallid or reddish when old; spores narrowly ellipsoid, scarcely rough, 6–7.5 × 3.5–4 μ.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: On the ground, in mixed forests.
DISTRIBUTION: New York.

155. **Cortinarius flexipes** Fries, Epicr. Myc. 300. 1838.

Agaricus flexipes Fries, Syst. Myc. 1: 212. 1821.

Pileus slightly fleshy, at first conic, then conic-campanulate, 1–3 cm. broad; surface hygrophanous, the ground-color cinnamon-brown, densely covered with shining grayish-white subagglutinate fibrillose scales up to the apex of the acute umbo, the scales small, superficial and easily rubbed off; context at the very first violaceous, soon pallid or brownish, the odor and taste mild; lamellae adnate-emarginate, at first or when moist walnut-brown (R) with a purplish tint, soon Sudan-brown (R), broad, close to subdistant, the edge entire, at first whitish; stipe at first strict, then flexuous, 3.5–5 cm. long, 2–4 mm. thick, stuffed, then hollow, dark-violaceous at the apex, soon grayish-brown, annulate by a distinct white annulus above the middle, concentrically subannulate below with white flecks, at first violet within; spores ellipsoid, slightly rough, 7–7.5 × 4–5 μ, pale-ochraceous.

TYPE LOCALITY: Sweden.
HABITAT: Among mosses, in coniferous swamps.
DISTRIBUTION: Adirondack Mountains, New York; also in Europe.
ILLUSTRATIONS: Grevillea *pl. 113, f. 3;* Ricken, Blätterp. Deutschl. *pl. 49, f. 4.*

156. **Cortinarius nigrellus** Peck, Ann. Rep. N. Y. State Mus. **26**: 62. 1874.

Pileus at first conic, soon convex or expanded, umbonate or subumbonate, 2–5 cm. broad; surface minutely silky, hygrophanous, walnut-brown (R) when moist, paler when dry, the odor and taste mild; lamellae close, somewhat narrow, adnate, then emarginate, pinkish-buff (R) at first, then clay-colored (R); stipe equal or subequal, 5–7 cm. long, 4–8 mm. thick, silky-fibrillose from white fibrils, sometimes annulate from the white veil, often flexuous, stuffed; spores minute, inequilateral, smooth, 6–7 × 3–3.5 μ.

TYPE LOCALITY: New Scotland, New York.
HABITAT: Among mosses, in coniferous forests.
DISTRIBUTION: New York.

157. **Cortinarius punctatus** Fries, Epicr. Myc. 299. 1838.

Pileus slightly fleshy, campanulate-convex, umbonate or subumbonate, 2–5 cm. broad; surface glabrous, even, punctate, hygrophanous, vandyke-brown (R) when moist, fading to cinnamon-buff (R); context thin and equal except at the umbo, concolorous, the odor none; lamellae broadly adnate, rather broad, thick, distant, cinnamon at first, then hazel (R) to vandyke-brown (R), the edge entire; stipe equal or slightly enlarged toward base, 5–7 cm. long, 3–6 mm. thick, concolorous or paler, fuscescent, becoming darker downward, innately fibrillose-silky, stuffed, fuscescent within, white-mycelioid at base; cortina pallid, fuscescent, evanescent; universal veil thin, fuscescent, more or less obsolete; spores broadly ellipsoid or subovoid, coarsely tuberculate, 10–12(–13) × 6–8(–9) μ, dark-rusty-brown under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: Under spruce and firs, in mountain forests.
DISTRIBUTION: Colorado; also in Europe.

158. **Cortinarius glandicolor** Fries, Epicr. Myc. 298. 1838.

Pileus subfleshy to submembranaceous, at first ovoid to conic-campanulate, then convex-campanulate, subexpanded, with a mammillate or subacute umbo, 2–5 cm. broad; surface glabrous, hygrophanous, Prout-brown (R) to chestnut-brown (R) when moist, cinnamon (R) to ochraceous-buff (R) when dry, becoming blackish-stained or entirely dark-fuscous in age; margin at first incurved and white-silky from veil; context thin, concolorous, hygrophanous, scissile, the odor and taste none or slight; lamellae adnate, subdistant to distant, thickish, 5–8 mm. broad, at first cinnamon, then umber, the edge entire; stipe equal or subequal, 4–8 cm. long, 4–8 mm. thick, sometimes subclavate or abruptly attenuate at the base, soon hollow, naked above, whitish at first, soon fuscescent, zoned by shreds from the whitish universal veil, or with a subannular single zone above middle; spores broadly ellipsoid, tuberculate, 8–10 × 5–6 μ, dark-brown under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: On mosses and debris, under fir trees, in higher mountains.
DISTRIBUTION: New York to Michigan; Colorado; Washington; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 789* (*812*); Ricken, Blätterp. Deutschl. *pl. 50, f. 3.*

159. **Cortinarius bistreoides** C. H. Kauffman, Papers Mich. Acad. 1: 129. 1923.

Pileus submembranaceous, fragile, at first conic-campanulate, then expanded-plane or repand on the margin, and usually with a subacute umbo, 2–4 cm. broad; surface glabrous, silky-shining when dry, even, mummy-brown (R) when moist, ochraceous-buff (R) on drying, the umbo at length bister (R) and finally tinged with bister color elsewhere; margin at first very thin, at first with delicate white silkiness, at length incised and frequently crenate-furrowed; context concolorous, hygrophanous, quite thin, the odor slight, radishy-earthy, the taste mild; lamellae adnate, often sinuate, strongly ventricose, broad, definitely subdistant, pallid-brownish at first, then tawny (R), the edge white-flocculose; stipe slender, equal, 4–6 cm. long, 2–4 mm. thick, somewhat rigid-elastic, straight or flexuous, solid, innately silky-fibrillose and shining when dry, at length slowly fuscescent, somewhat incarnate-brownish within, scarcely marked by remnants of the whitish universal veil; spores ellipsoid, distinctly tuberculate when mature, 10–12 × 5–6(–7) μ, dark-rusty-brown under the microscope.

TYPE LOCALITY: Leal, Colorado.
HABITAT: Under spruce and fir, in mountain forests.
DISTRIBUTION: Colorado.

160. **Cortinarius iliopodius** Fries, Epicr. Myc. 301. 1838.

Agaricus iliopodius Fries, Syst. Myc. 1: 231. 1821.

Pileus campanulate-subexpanded, mammillate, 2–3 cm. broad; surface hygrophanous sorghum-brown (R), the umbo blackish when moist, avellaneous (R) when dry and then canescent-fibrillose and silky-shining; margin at first incurved and white-silky from the veil; context thin, scissile, brownish when moist, then pallid, the odor and taste mild; lamellae pallid at first, then cinnamon (R), thin, adnate, rounded behind, ventricose, rather broad, close to subdistant; stipe slender, elongate, equal, 5–9 cm. long, 3–4 mm. thick, stuffed, at length flexuous, decorated by the delicate white silky remnants of the veil, pale-incarnate, fuscescent, the context fuscous-brown or ochraceous toward base, the cortex cartilaginous; spores ellipsoid, slightly rough, 10–12 × 5–6 μ.

TYPE LOCALITY: Sweden.
HABITAT: On sphagnum, in coniferous forests.
DISTRIBUTION: Adirondack Mountains, New York; also in Europe.
ILLUSTRATION: Cooke, Brit. Fungi *pl. 839b* (*818*).

161. **Cortinarius gracilis** Peck; Sacc. Syll. Fung. 9: 133. 1891.

Telamonia gracilis Peck, Bull. N. Y. State Mus. 1^2: 8. 1888.

Pileus fleshy, convex or campanulate, then expanded, umbonate, 1–2.5 cm. broad; surface hygrophanous, floccose-fibrillose, brown or sordid-chestnut when moist, the margin gray-

fibrillose, subochraceous or fuscous-cinnamon when dry; context thin; lamellae thin, subdistant, subventricose, ferruginous-brownish, then cinnamon; stipe long, graceful, 5–10 cm. long, 2–4 mm. thick, flexuous, fibrillose, slightly floccose-scaly, with a thin, white, evanescent, concolorous annulus; spores ellipsoid, regular, 8–10 × 5–6 μ.

TYPE LOCALITY: Sandlake, New York.
HABITAT: In moss and sphagnum, in swamps.
DISTRIBUTION: New York.

162. **Cortinarius badius** Peck, Ann. Rep. N. Y. State Mus. **41**: 73. 1888.

Pileus fleshy, varying from conic to campanulate-convex, umbonate, 1–2.5 cm. broad; surface hygrophanous, blackish-chestnut-colored when moist, bay-red or chestnut when dry, sometimes gray-tinged, the umbo darker, usually whitish-silky on the margin when young; context concolorous when moist, thin; lamellae broad, subdistant, ventricose, adnexed, at first yellowish or cream-colored, then subochraceous; stipe slender, equal, 2–4 cm. long, about 2 mm. thick, hollow, silky-fibrillose and subannulate by the whitish veil, concolorous within and without; spores large, broadly ellipsoid, scarcely rough, 11–12.5 × 6.5–7.5 μ.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: On moist ground, in moss or sphagnum, in coniferous or mixed forests.
DISTRIBUTION: New England and Canada to Tennessee; Washington and Oregon.
ILLUSTRATION: C. H. Kauffman, Agar. Mich. *pl. 87.*

163. **Cortinarius impolitus** C. H. Kauffman, Agar. Mich. **1**: 419. 1918.

Pileus slightly fleshy, small, firm, conic-campanulate, then expanded, obsoletely umbonate, obtuse, 8–20 mm. broad; surface minutely fibrillose-scaly, the fibrils often dense at first, hygrophanous, umber to chestnut-cinnamon at first, becoming pale-fawn or sometimes rufous-ochraceous, silky on the decurved margin, even; context thin, concolorous, the odor and taste none; lamellae adnate, relatively broad, subdistant, thickish, at first whitish or pallid, then cinnamon, the edge entire; stipe slender, equal, 2–2.5 cm. long, 1–3 mm. thick, stuffed, brownish or fuscescent, annulate about the middle by a floccose, subpersistent, whitish ring, silky-fibrillose; cortina dingy-whitish; spores narrow-subfusiform, subacute at the ends, smooth, 9–10 × 4–4.5 μ.

TYPE LOCALITY: New Richmond, Michigan.
HABITAT: On mossy, sandy soil, in pine and beech woods.
DISTRIBUTION: Known only from the type locality.

164. **Cortinarius castaneoides** Peck, Ann. Rep. N. Y. State Cab. 23: 111. 1872.

Pileus fleshy, campanulate-convex, then expanded, 1–2 cm. broad; surface chestnut-brown to dark-watery-cinnamon, brownish-ochraceous when dry, subumbonate and usually darker on the center, hygrophanous, scarcely silky with a few superficial fibrils, even, the margin sometimes whitish from the veil; context thin, watery-brownish, then pallid, the odor and taste none; lamellae adnate, then emarginate, rather broad, subdistant, yellowish at first, then yellowish-cinnamon to dark-cinnamon, the edge almost entire; stipe equal, slender, 2–5 cm. long, 1.5–3 mm. thick, stuffed, then hollow, subflexuous, pallid, annulate from the cortina and the fugacious universal veil which remains as delicate subannular shreds on the stipe below; spores ellipsoid, smooth, 6–7.5 × 3.5–4.5 μ.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: On mossy ground, in low frondose or coniferous woods.
DISTRIBUTION: New England to Michigan.
ILLUSTRATION: Ann. Rep. N. Y. State Cab. **23**: *pl. 4, f. 10–15.*

165. **Cortinarius incisus** Fries, Epicr. Myc. 301. 1838.

Agaricus incisus Fries, Syst. Myc. 1: 213. 1821.

Pileus slightly fleshy, campanulate-convex, subumbonate, the umbo varying from acute to obtuse, 2–5 cm. broad; surface snuff-brown (R) to cinnamon-rufous (R), glabrous, at length minutely lacerate-scaly, especially toward the margin, non-striate, hygrophanous; margin at first incurved; context thin, concolorous, then pallid; lamellae adnate, then sinuate, subdistant, the shorter ones narrower, moderately broad, cinnamon, then ferruginous, the edge entire; stipe usually short, sometimes elongate, 3–6 cm. long, 2–5 mm. thick, equal, stuffed, then hollow, straight or flexuous, glabrous above, fibrillose downward, sayal-brown (R) within and without, fulvescent, marked by white on the lower half from the veil; spores broadly ellipsoid, 7–8.5(–9) $\times$ 5–6 μ, almost smooth, pale-rusty under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: Under conifers, in mountains.
DISTRIBUTION: Colorado; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 807* (*819*); Fries, Ic. Hymen. *pl. 160, f. 1.*

166. **Cortinarius rigidus** Fries, Epicr. Myc. 302. 1838.

Pileus slightly fleshy, conic or conic-campanulate, then acutely or obtusely umbonate and expanded, 2–4 cm. broad; surface glabrous, even, hygrophanous, at very first bone-brown (R), then varying from army-brown (R) to argus-brown (R) fading to avellaneous (R) or ochraceous-buff (R), sometimes minutely scaly-cracked, white-silky on the margin from the veil; context thin, concolorous, fading, scissile, the odor more or less marked; lamellae adnate, at length sinuate with a decurrent tooth, close, noticeably broad, thick, often transversely wrinkled, at first cinnamon-brown (R), then tawny-ochraceous (R); stipe equal, 4–7 cm. long, 3–5 mm. thick, stuffed but soon hollow, varying from short and rigid to longer and flexuous, of the same color as the pileus within and without, but decorated upward to above the middle by appressed, fibrillose, white, concentric zones from the universal veil, pallescent at the apex, white-mycelioid at base; spores broadly ellipsoid, obtuse, minutely but distinctly tuberculate, 7–9 $\times$ 5–5.5(–6) μ, dark-rusty-brown under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: On mossy ground, along streams, in coniferous forests.
DISTRIBUTION: Colorado to Washington and Oregon; also in Europe.
ILLUSTRATION: Cooke, Brit. Fungi *pl. 791* (*822*).

167. **Cortinarius paludosus** Peck, Ann. Rep. N. Y. State Mus. **43**: 65. 1890.

Pileus fleshy, conic or convex, 2–4 cm. broad; surface ferruginous when moist, buff-yellow or pale-ochraceous when dry, hygrophanous; context yellowish; lamellae broad, subdistant, adnate, saffron-yellow; stipe equal, 5–8 cm. long, 4 mm. thick, flexuous, solid, peronate and subannulate by the fibrillose yellow universal veil; spores 7.5–9 $\times$ 5 μ.

TYPE LOCALITY: Rainbow, New York.
HABITAT: Mossy ground, in swamps.
DISTRIBUTION: Known only from the type locality.

168. **Cortinarius hemitrichus** Fries, Epicr. Myc. 302. 1838.

Pileus fleshy, campanulate, umbonate, the umbo sometimes obsolete, when present varying from acute to obtuse, 2–5 cm. broad (rarely larger); surface watery-cinnamon when moist, the ground-color umber, hygrophanous, more or less canescent from the white, superficial, cirrate fibrils which at first cover it, sometimes glabrescent in age, the color fading to ochraceous-tan when dry; margin persistently white-silky; context concolorous, thin, the odor and taste mild; lamellae adnate, then emarginate, broad, close in front, subdistant behind, at first brownish-gray to subochraceous, at length dark-cinnamon, the edge erose-crenulate; stipe equal, 3–6 cm. long, 2–5 mm. thick, hollow, rigid, more or less annulate at or below the middle by a white,

appressed ring, watery-fuscous-brown within, fuscescent or brownish-fuscous without, fibrillose below the annulus; spores ellipsoid, smooth, 6–8 × 4–5 μ (rarely 9 × 5.5 μ).

TYPE LOCALITY: Sweden.
HABITAT: Swampy woods or low places, among thickets.
DISTRIBUTION: New England to Tennessee and Wisconsin; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 825* (*820*); Fries, Ic. Hymen. *pl. 160, f. 2;* Gill. Champ. Fr. *pl. 338* (*226*); Ricken, Blätterp. Deutschl. *pl. 49, f. 5.*

169. **Cortinarius paleaceus** Fries, Epicr. Myc. 302. 1838.

Pileus slightly fleshy, conic-expanded, often pointed-conic, sometimes obtuse, 2–3 cm. broad; surface fuscous, fading, hygrophanous, opaque, silky with cirrate, loose, superficial, white fibrils, glabrescent; context thin, submembranous, concolorous, mild; lamellae broad, crowded, at first pallid, then fuscous-cinnamon; stipe 4–7 cm. long, 2–4 mm. thick, slender, undulate, slightly tough, hollow, fuscescent within and without, minutely flocculose-scaly, with a white zone at the apex, white-floccose-hairy at base; spores ellipsoid, smooth, 6–8 × 4–5 μ.

TYPE LOCALITY: Sweden.
HABITAT: In moist places, in thickets or coniferous and frondose woods.
DISTRIBUTION: New England to Wisconsin and southward; Colorado; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 106, f. 4;* Gill. Champ. Fr. *pl. 337* (*241*); Cooke, Brit. Fungi *pl. 826* (*823*); C. H. Kauffman, Agar. Mich. *pl. 89.*

170. **Cortinarius nigrocuspidatus** C. H. Kauffman, Papers Mich. Acad. 1: 138. 1923.

Pileus submembranous or slightly fleshy, at first conic-campanulate, then campanulate with a black and obtusely conic prominent umbo, or mammillate, 2–3.5(–4.5) cm. broad; surface innately silky-fibrillose, silky-shining when dry, even, sepia (R) or army-brown (R), fading to wood-brown or paler, the umbo darker, hygrophanous; margin at first decorated by narrow shreds of the white universal veil; context thin, concolorous, hygrophanous, fading, the odor and taste mild or slightly of radish; lamellae adnate, then emarginate with decurrent teeth, subdistant, rather broad, ventricose, somewhat wrinkled on surfaces, at first pallid-brownish, then cinnamon (R) to tawny-cinnamon (R); stipe slender, elastic, equal, 4–6 cm. long, 3–5 mm. thick, flexuous, stuffed, of the same color as the pileus within, subfuscescent, unequally zoned downward by the silky and white remnants of the delicate universal veil, sometimes with only an annular median zone, slightly fuscescent in age; spores short-ellipsoid to suboval, obtuse, minutely and indistinctly rough, 8–9(–10) × 5–6 μ, rusty-brownish under the microscope.

TYPE LOCALITY: Leal, Colorado.
HABITAT: Under spruce and fir, in mountain forests.
DISTRIBUTION: Colorado.

171. **Cortinarius livor** Fries, Epicr. Myc. 306. 1838.

Pileus firm, campanulate, obtuse, sometimes gibbous, 3–4 cm. broad; surface sooty-brown, obscurely olive-gray on the center, innately subtomentose, scarcely hygrophanous, not fading, even, the margin at first incurved; context thickish on the disk, sooty-brown under the center, pallid or whitish elsewhere, the odor slight; lamellae adnate, then emarginate, close, relatively broad, pallid-cinnamon at first; stipe subequal, sometimes more narrow at the base, 4–5 cm. long, 4–7 mm. thick, sometimes subbulbous, slightly violaceous above, becoming dingy-olivaceous to brownish below, solid, firm, at first violaceous within; spores broadly ellipsoid, obtuse, slightly rough, 7–8 × 5 μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in mixed woods.
DISTRIBUTION: Michigan; also in Europe.

172. **Cortinarius ferrugineo-griseus** Peck, Bull. N. Y. State Mus. 139: 46. 1910.

Pileus fleshy, convex or nearly plane, sometimes repand and centrally depressed, 3.5–10 cm. broad; surface hygrophanous, brownish-ferruginous when moist, gray or whitish-gray on

losing moisture; context whitish; lamellae adnexed, moderately close, 8–12 mm. broad, at first pale-cinnamon or clay-colored, at length brownish-cinnamon; stipe equal above the abruptly bulbous base, 3.5–8.5 cm. long, 6–20 mm. thick, solid or stuffed, silky-fibrillose, sometimes shining, concolorous but paler, the color variable, whitish below and violaceous-tinged above, or entirely violaceous, violaceous within; spores ellipsoid, 10–12 × 7–8 μ.

TYPE LOCALITY: Natick, Massachusetts.
HABITAT: Under pine trees, in swamps.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATIONS: Bull. N. Y. State Mus. 139: *pl. Y, f. 1–4; pl. Z, f. 1–3.*

173. **Cortinarius saturninus** Fries, Epicr. Myc. 306. 1838.

Agaricus saturninus Fries, Syst. Myc. 1: 219. 1821.

Pileus fleshy, campanulate, expanded, sometimes gibbous, 3–8 cm. broad; surface glabrous, hygrophanous, pale-watery-brown when moist, ochraceous-gray-buff when dry, silky around the margin; context thin, scissile, violaceous, then pallid, the odor and taste mild; lamellae adnate, then emarginate, adnexed, close, moderately broad, violaceous or purplish-tinged at first, then ashy-cinnamon, thin, the edge entire; stipe subequal, slightly thicker downward, 4–6 cm. long, 6–12 mm. thick, terete or compressed, stuffed, violaceous above, whitish below, fibrillose, glabrescent and shining when dry; cortina whitish; spores ellipsoid, slightly rough, 7–8 × 5–6 μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in frondose and coniferous forests.
DISTRIBUTION: New York to Michigan; Colorado; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 161, f. 2;* Gill. Champ. Fr. *pl. 247.*

174. **Cortinarius privignus** Fries, Epicr. Myc. 304. 1838.

Agaricus privignus Fries, Obs. Myc. 2: 72. 1818.

Pileus fleshy, gibbous, campanulate-convex, obtuse or broadly umbonate, 4–7 cm. broad; surface hygrophanous, walnut-brown (R) to deep-brownish-drab (R), innately variegated-micaceous-silky, paler and with a tinge of drab when dry, glabrous, even; margin at first incurved and white-silky, at length splitting radially; context thin except the disk, concolorous to pallid; lamellae adnate-emarginate, rather broad, ventricose, not crowded, brownish, at first Mikado-brown (R), then cinnamon-umber, the edge concolorous; stipe equal or subequal, 4–7 cm. long, 7–10 cm. thick, sometimes with a clavate thickened base, sometimes subattenuate at the base, pallid with a tinge of drab, sordid-white within, at length subfuscescent at base, at first covered by silky-white fibrils, shining when dry, glabrous, even, not cingulate, stuffed, then hollow; spores broadly ellipsoid, obtuse, almost smooth, 8–9 × 5–6 μ.

TYPE LOCALITY: Sweden.
HABITAT: Under pine, fir, and hemlock, usually in mountain forests.
DISTRIBUTION: New York to Tennessee and Michigan; Washington; also in Europe.

175. **Cortinarius illuminus** Fries, Epicr. Myc. 305. 1838.

Pileus slightly fleshy, campanulate-expanded, obtusely subumbonate, with a rigid cuticle, 3–5(–7) cm. broad; surface glabrous, even, sometimes rimose-subareolate in wet weather, subhygrophanous, chestnut-brown (R) to cinnamon-rufous (R) and silky-shining when moist, fading slowly, finally cinnamon-buff (R), or at times scarcely faded; margin at first incurved and whitish-silky from the whitish fibrillose cortina, soon spreading; context concolorous, scarcely fading, rigid-brittle, thin except the disk, the odor that of radish, but not strong; lamellae adnexed-emarginate, close, 4–6 mm. broad, thickish, wrinkled on the sides, cinnamon-rufous (R) to terra-cotta (R), becoming darker, the edge crenulate; stipe tapering upward, 6–10 cm. long, 5–10 mm. thick, short-attenuate and curved below the thickest part, stuffed, then hollow, soft at base, white when fresh, then sordid-streaked, white-mycelioid toward base; spores oval-ellipsoid, almost smooth, 7–8(–9) × 5–5.5 μ, pale-brownish under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: Under spruce, fir, and pine, in higher mountains.
DISTRIBUTION: Colorado; also in Europe.
ILLUSTRATION: Cooke, Brit. Fungi *pl. 841 (830).*

176. **Cortinarius duracinus** Fries, Epicr. Myc. 304. 1838.

Pileus convex, then expanded, obtuse, sometimes gibbous, 4–10 cm. broad; surface hygrophanous, watery-cinnamon-brown when moist, rufous-tinged on the disk, pale-ochraceous-tan to buff when dry, glabrous, even; margin at first incurved, then geniculate and obsoletely silky; context rigid-brittle, then scissile, concolorous, at length pallid, the odor and taste mild; lamellae adnate or slightly subdecurrent, thin, subdistant, moderately broad, pallid at first but soon watery-cinnamon, the edge even or scarcely crenulate; stipe tapering downward or fusiform-subradicate, 4–12 cm. long, 6–15 mm. thick, glabrous, rigid, stuffed, then hollow, sometimes compressed, at length shining, white, at first cortinate-fibrillose; cortina white; spores ellipsoid, almond-shaped, scarcely rough, 7–9.5 × 5–5.5 μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in frondose or mixed woods.
DISTRIBUTION: New York to Michigan, and southward to North Carolina; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 809 (829)*; Ricken, Blätterp. Deutschl. *pl. 51, f. 2;* Grevillea *pl. 115, f. 1.*

177. **Cortinarius dilutus** Fries, Epicr. Myc. 305. 1838.

Agaricus dilutus Fries, Syst. Myc. 1: 235. 1821.

Pileus subfleshy, convex, then expanded, finally irregular, 3–5 cm. broad; surface glabrous, hygrophanous, opaque, chestnut-brown (R) and even on the margin when moist, losing moisture first on the disk and fading at first to rufous (R) or ferruginous (R), finally cinnamon-buff (R); margin at first incurved and white-cortinate; context thin, soft, very thin on margin, concolorous, fading, the odor and taste mild; lamellae adnate, then emarginate, close, up to 10 mm. broad, often crisped, at first pale-cinnamon, then tawny (R); stipe subequal or tapering upward, 4–6 cm. long, 5–10 mm. thick, soft and spongy within, at first covered by the rather copious, white-silky cortina, rarely obsoletely cingulate, glabrescent, whitish; spores globose, slightly rough, 6–7 × 6 μ, pale, subochraceous under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: Under pines, in mountains.
DISTRIBUTION: Adirondack Mountains, New York; Rocky Mountains, Colorado; Olympic Mountains, Washington; Mount Hood, Oregon; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 810 (832)*; Grevillea *pl. 85, f. 2;* Ricken, Blätterp. Deutschl. *pl. 52, f. 1.*

178. **Cortinarius regularis** Peck, Ann. Rep. N. Y. State Mus. **30**: 43. 1878.

Pileus fleshy, convex, then expanded, 2.5–5 cm. broad; surface hygrophanous, glabrous, watery-brown when moist, reddish-ochraceous when dry, often slightly radiate-rugulose; context whitish, becoming white when dry; lamellae close, slightly violaceous when young; stipe long, nearly straight, 7–12 cm. long, 2–4 mm. thick, stuffed, slightly tapering upward, silky-fibrillose, white; spores ellipsoid, 9–10 × 5–6 μ.

TYPE LOCALITY: Center, New York.
HABITAT: In a sphagnous marsh.
DISTRIBUTION: Known only from the type locality.

179. **Cortinarius glabrellus** C. H. Kauffman, Jour. Myc. **13**: 35. 1907.

Pileus hemispheric-convex at first, campanulate-expanded, obtuse or broadly umbonate, 5–10 cm. broad; surface glabrous, hygrophanous, with a slight pellicle, watery-cinnamon when moist, becoming brick-colored on drying, then paler, even; margin at first incurved and white-silky; context concolorous, then pallid, rather thin, the odor and taste slightly of radish; lamellae adnate, moderately broad, broadest behind, close, distinct, thin, at first brownish-pallid, then cinnamon-brown; stipe varying from equal to subclavate below, 4–8 cm. long, 8–18 mm. thick, rather stout and firm, straight or curved at base, pallid or whitish, silky-fibrillose and shining when dry, stuffed; cortina white; spores ellipsoid, smooth, 6–8.5 × 4–5 μ.

TYPE LOCALITY: Ann Arbor, Michigan.
HABITAT: On the ground, in frondose woods.
DISTRIBUTION: Michigan and New York.
ILLUSTRATION: C. H. Kauffman, Agar. Mich. *pl. 90.*

180. **Cortinarius armeniacus** Fries, Epicr. Myc. 304. 1838.

Agaricus armeniacus Fries, Syst. Myc. **1**: 234. 1821.

Pileus fleshy, rather firm, campanulate-subexpanded, broadly umbonate, obtuse, 5–7 cm. broad; surface glabrous, even, hygrophanous, Sudan-brown (R) when moist, orange-buff (R) or tan throughout when dry; margin white-silky from the cortina when dry; context thin on the margin, scissile, soon pallid, the odor and taste mild or slightly that of radish; lamellae adnate, emarginate, broad, ventricose, close, thin, at first pallid, then Mars-yellow (R) to cinnamon, the edge entire; stipe tapering upward, 5–7 cm. long, 5–8 mm. thick above, twice as thick below, watery-pallid when moist, dingy-whitish when dry, silky-fibrillose, the rind cartilaginous, stuffed, spongy at base, cortina whitish, sparse; spores ellipsoid, slightly rough, 8–9 × 5–5.5 μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in coniferous mountain forests.
DISTRIBUTION: New York and Washington; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 793* (*826*); Ricken, Blätterp. Deutschl. *pl. 51, f. 4*.

181. **Cortinarius imbutus** Fries, Epicr. Myc. 306. 1838.

Pileus convex, then expanded, obtuse or subumbonate, 2.5–7 cm. broad; surface even, hygrophanous, chestnut-brown when moist, changing color, alutaceous or rufous-tinged on the disk when dry and then becoming somewhat hoary; margin at first incurved and sometimes decorated by whitish fibrillose scales from the cortina; context thickish on the disk, thin on the margin, watery to pallid, the odor none; lamellae adnate, then subemarginate, broad, close, not crowded, violaceous at first with lavender tinge, soon cinnamon, the edge concolorous; stipe rather stout, 3–5 cm. long, 5–10 mm. thick, equal or nearly so, solid, at first violaceous, especially at the apex, rarely subannulate from the whitish cortina; spores narrow, ellipsoid, smooth, 7–8.5 × 4–4.5 μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in frondose or coniferous woods.
DISTRIBUTION: New York to Michigan; Colorado; also in Europe.
ILLUSTRATION: Cooke, Brit. Fungi *pl. 870* (*834*).

182. **Cortinarius castaneus** Fries, Epicr. Myc. 307. 1838.

Agaricus castaneus Fries, Syst. Myc. **1**: 235. 1821.

Pileus firm, campanulate-convex, expanded or gibbous, even, subumbonate, 2–5 cm. broad; surface scarcely hygrophanous, dark-chestnut-colored, shining when dry, hardly fading, the margin at first white-silky; context thin, rigid-tough, concolorous to pallid, the odor and taste slight; lamellae adnexed, not broad, ventricose, close, violet at first, then rusty-cinnamon, the edge whitish; stipe not truly slender, 2–4 cm. long, 4–6 mm. thick, cartilaginous, stuffed, then hollow, violaceous or pallid-rufescent, silky from the white cortina; spores ellipsoid, rough, 7–9 × 4–5 μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in open woods.
DISTRIBUTION: New York; also in Europe.
ILLUSTRATION: Cooke, Brit. Fungi *pl. 842* (*835*).

183. **Cortinarius laetior** P. Karst. Bidr. Finl. Nat. Folk **32**: 387. 1879.

Pileus subfleshy, at first oval to subhemispheric, then expanded-plane and obtusely subumbonate, 2–4 cm. broad; surface glabrous, hygrophanous, chestnut-brown (R) when moist, cinnamon-brown (R) when dry and then interspersed with innate silky white fibrils; margin at first incurved and striate, then decurved; context thin, the odor and taste mild; lamellae adnate, rather narrow to moderately broad, close, at first clay-colored (R), then ochraceous-tawny, the edge entire and concolorous; stipe equal or slightly incrassate downward, 5–9 cm. long, 5–6 mm. thick, stuffed and soft within, then hollowed by grubs, violaceous-tinged at the apex, elsewhere dingy-brownish when moist, fading to cinnamon-buff (R); surface silky-fibrillose;

cortina whitish; spores broadly ovoid, smooth, 7–8 × 5.5–6 μ, dark-brownish under the microscope.

Type locality: Finland.
Habitat: In deep moss and sphagnum, in coniferous forests.
Distribution: Adirondack Mountains, New York; also in Europe.

184. **Cortinarius pallidus** Peck, Ann. Rep. N. Y. State Mus. **42**: 118. 1889.

Pileus submembranous, convex or nearly plane, 2.5–4 cm. broad; surface glabrous, hygrophanous, pale-alutaceous when moist, buff-yellow when dry; context thin, concolorous when moist, whitish when dry; lamellae thin, rather close, ventricose, pallid; stipe equal, 4–7 cm. long, 2–4 mm. thick, rigid, hollow, silky-fibrillose, pallid, becoming brownish toward base; spores ellipsoid, 7.5–9 × 5–6 μ.

Type locality: North Elba, New York.
Habitat: Mossy ground, in wooded swamps.
Distribution: Adirondack Mountains, New York.

185. **Cortinarius erugatus** Fries, Epicr. Myc. 306. 1838.

Pileus campanulate-convex, obtuse to broadly subumbonate, 3–6 cm. broad; surface hygrophanous, pale-umber-cinnamon to grayish-brown with a rufous or fulvous umbo when moist, on drying becoming pale-reddish-gray with innate silky fibrils and silvery sheen, glabrous, even; margin at first incurved and entirely white-silky; context thin, splitting on the margin, this at length recurved, the odor and taste mild; lamellae adnate-emarginate, rather broad behind, tapering in front, close, thin, pallid-brownish at first, then alutaceous to ferruginous, the edge minutely erose-lacerate; stipe variable in length and thickness, at first clavate-bulbous, then elongate, 4–7 cm. long (when elongate 8–10 cm.), 5–12 mm. thick, soft-spongy, stuffed, pallid and streaked with silky white fibrils, becoming sordid, not cingulate; spores ellipsoid, rather narrow, smooth, variable in length, 6–8.5 (rarely 9) × 4–4.5 μ.

Type locality: Sweden.
Habitat: On leaf-mold, in coniferous woods.
Distribution: Michigan and Maryland; also in Europe.

186. **Cortinarius subrigens** C. H. Kauffman, Agar. Mich. 1: 433. 1918.

Pileus fleshy, broadly convex from the first, then expanded-plane or subdepressed, 3–5 cm. broad; surface bay-brown to chestnut and variegated with white hoariness when moist, fading quickly to cinnamon-rufous and then hoary isabelline when dry, hygrophanous, even; margin at first incurved and cortinate; context rigid-brittle, thin, dingy-pallid or brownish, the odor and taste mild; lamellae sinuate-adnate, close, moderately broad, pallid to brownish, then cinnamon, the edge entire and concolorous; stipe equal or tapering downward, 3–5 cm. long, 5–10 mm. thick, rigid, the base often curved, stuffed, then hollow, at first cortinate-fibrillose, glabrescent and silky-shining, pallid to white, rarely subannulate from the white cortina; spores narrow-ellipsoid, subinequilateral, slightly rough, 9–10 × 4.5–5.5 μ.

Type locality: Ann Arbor, Michigan.
Habitat: On leaf-mold, in frondose woods.
Distribution: Michigan.

187. **Cortinarius praepallens** Peck, Bull. N. Y. State Mus. 1^2: 9. 1888.

Pileus fleshy, subconic, then convex or expanded, 1–4 cm. broad; surface hygrophanous, brown or chestnut-colored when moist, pallid-ochraceous when dry; context yellowish-white, thin; lamellae rounded behind or subemarginate, crowded, lanceolate, reddish-umber, then fuscous-cinnamon; stipe equal, 2–7 cm. long, 4–8 mm. thick, subflexuous, fleshy, fibrous, subsilky, pallid or brownish; spores subellipsoid, 7–10 × 6.5 μ.

Type locality: Sandlake, New York.
Habitat: On the ground, in woods.
Distribution: New York to Maryland.

188. Cortinarius juberinus Fries, Epicr. Myc. 309. 1838.

Pileus campanulate-convex, then expanded, umbonate or the umbo obsolete, 2–4 cm. broad; surface chestnut-brown to watery-cinnamon when moist, ochraceous when dry, subhygrophanous, glabrous, even, silky-shining when dry; margin at first incurved and white-silky from the cortina; context concolorous, thin, the odor and taste slight or none; lamellae adnate, then subemarginate, subdistant, rather broad, thin, at length ventricose, pallid-brown, then cinnamon, the interspaces somewhat venose, the edge concolorous; stipe moderately slender, equal or subequal, 3–7 cm. long, 3–5 mm. thick, even, stuffed, then hollow, pallid at first, then brownish or fuscescent, innately silky-fibrillose; cortina white, fugacious; spores broadly ellipsoid-ovoid, scarcely rough, 6.5–7.5 × 4.5–5 μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in mixed or coniferous woods.
DISTRIBUTION: Northeastern North America; also in Europe.
ILLUSTRATION: Cooke, Brit. Fungi *pl. 797* (*842*).

189. Cortinarius angulosus Fries, Epicr. Myc. 308. 1838.

Pileus fleshy, firm, convex-campanulate, obtuse or with a broad obtuse umbo, 3–6(–7) cm. broad; surface glabrous, even, hygrophanous, Dresden-brown (R) to cinnamon-brown (R) when moist, becoming yellow-ocher (R) to ochraceous-orange (R) on losing moisture, opaque; margin at first incurved, soon naked; context concolorous, thin on the margin, the odor and taste none; lamellae adnate, thickish, close to subdistant, distinct, subventricose, rather broad, pale-cinnamon, then tawny (R) or ochraceous-tawny (R), the edge entire and concolorous; stipe equal or slightly tapering upward, 4–6(–7) cm. long, 3–7(–8) mm. thick, firm and rigid when growing, stuffed, straight, at length subflexuous, sometimes twisted, yellowish or lutescent, innately fibrillose or naked; cortina scanty, fugacious; spores ellipsoid, roughish, 7–9 × 5–6 μ, ochraceous-brownish under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: Under conifers, in moist forests.
DISTRIBUTION: Rocky Mountains, Colorado; Adirondack Mountains, New York; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 162, f. 2;* Ricken, Blätterp. Deutschl. *pl. 50, f. 5.*

190. Cortinarius isabellinus Fries, Epicr. Myc. 308. 1838.

Pileus rather fleshy, becoming brittle, subcampanulate at first, then convex-subexpanded, obtuse or subumbonate, sometimes gibbous, 3–5 cm. broad; surface glabrous, even, with a cartilaginous thin cuticle, hygrophanous, Saccardo-umber (R) when moist, olive-ocher (R) when dry, the variegated effect of these shades of color while losing moisture being characteristic; context rather thick on the disk, abruptly thin on the margin, concolorous; cortina olive-ocher, evanescent; lamellae adnate to emarginate-uncinate, close to subdistant, sometimes thick and wrinkled on the sides, rather broad, at first pale olive-ocher (R), finally cinnamon (R), the edge subserrulate; stipe equal, 4–8 cm. long, 4–8 mm. thick, sometimes short-attenuate at the base, curved or flexuous, very rigid and brittle, solid but soon hollowed by grubs, striate at the apex, pale-olive-ocher (R) within and without, glabrous and shining; spores narrowly ellipsoid, pointed at one end, almost smooth, 8–9(–10) × 4.5–5 μ.

TYPE LOCALITY: Sweden.
HABITAT: On hard soil, in mountains, under pine.
DISTRIBUTION: Colorado; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 829* (*839*)*;* Grevillea *pl. 114, f. 1.*

191. Cortinarius renidens Fries, Epicr. Myc. 308. 1838.

Pileus slightly fleshy, firm, campanulate-convex, then expanded, obtuse or obtusely umbonate, 2.5–5(–6) cm. broad; surface glabrous, somewhat shining, roods-brown (R) to amber-brown (R) when moist, hygrophanous and fading, orange-cinnamon (R) to orange-buff (R) when dry, the disk fading quickly; margin at first incurved, with or without silky remnants of the yellowish, evanescent cortina; context hygrophanous, concolorous, at length pallid, scissile, the odor and taste mild; lamellae adnate, seceding, close, 5–7 mm. broad, at first pallid, at

length cinnamon-tawny (R); stipe equal or slightly enlarged below, 4–8 cm. long, 5–8 mm. thick, solid, soon hollowed by grubs, innately silky-fibrillose and shining, at first ochraceous-buff (R) or yellowish-tinged, at length pallid; spores oval, minutely rough, 6–7 × 4–5 μ, pale-ochraceous under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: Under spruce, fir, and hemlock, in the higher mountains.
DISTRIBUTION: Adirondack Mountains, New York; Cascade and Olympic Mountains, Washington and Oregon; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 162, f. 1;* Cooke, Brit. Fungi *pl. 782* (*840*).

192. **Cortinarius fuscoviolaceus** Peck, Ann. Rep. N. Y. State Mus. 27: 96. 1875.

Pileus convex, umbonate, soon expanded and centrally depressed, 1–2 cm. broad; surface glabrous, hygrophanous, chestnut-brown tinged with violet, the margin whitened by silky fibrils; lamellae rounded behind, at first plane, then ventricose, rather distant, dark-violaceous at first, becoming subcinnamon; stipe slender, flexuous, equal, 2.5–4 cm. long, solid, silky-fibrillose, colored like the pileus, spores minute, broadly ellipsoid, smooth, 6–7 × 3–4 μ.

TYPE LOCALITY: Forestburgh, New York.
HABITAT: On *Sphagnum*, in bogs.
DISTRIBUTION: New York and Michigan.

193. **Cortinarius obtusus** Fries, Epicr. Myc. 313. 1838.

Agaricus obtusus Fries, Syst. Myc. 1: 233. 1821.

Pileus submembranaceous, fragile, conic-campanulate, at length expanded and umbonate, or the umbo vanishing, 2–4 cm. broad; surface glabrous, Sudan-brown (R) to amber-brown (R) and striatulate nearly to the center when moist, light-ochraceous-buff (R) and even when dry, hygrophanous, losing moisture rapidly; context concolorous, thin, the odor and taste slight; lamellae adnate, seceding, subdistant, broad, ventricose, thickish, the shorter ones narrower, sometimes intervenose, at first clay-colored (R) to ochraceous-tawny (R), finally cinnamon, the edge entire; stipe equal or attenuate at the base, 4–6 cm. long, 3–6 mm. thick, cespitose or gregarious, fragile when fresh, subrigid-brittle when dry, the surface with scattered, appressed, silky fibrils, then glabrescent and shining, flexuous, soon hollow, alutaceous-lutescent or pallid-yellowish-brown when moist, whitish when dry, concolorous within; spores broadly ellipsoid, roughish, 8–10 × 5–6 μ, pale-ochraceous under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: Under coniferous trees, in mountain forests.
DISTRIBUTION: Adirondack Mountains, New York, and Rocky Mountains, Colorado; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 163, f. 3;* Cooke, Brit. Fungi *pl. 845a* (*852*); Gill. Champ. Fr. *pl. 341* (*236*); Grevillea *pl. 129, f. 1.*

194. **Cortinarius uraceus** Fries, Epicr. Myc. 309. 1838.

Pileus fleshy, firm, at first ovate or campanulate, then convex-subexpanded, often with a mammillate umbo, 2–5 cm. broad; surface hygrophanous, smoky-chestnut-brown (R) when moist, even, fading to cinnamon-brown or isabelline, with blackish streaks, often blackish on the umbo; margin persistently decurved; context thin except the disk, scissile, watery-chestnut when moist, fragile when dry, the odor of radish on crushing plants, the taste slight; lamellae broadly adnate, broad, close to subdistant, dark-watery-brown at first, then auburn to dark-rusty-brown (R), the edge at length black; stipe equal or tapering slightly upward, 4–9 cm. long, 4–10 mm. thick, becoming flexuous, firm, stuffed, then hollow, pallid when fresh, soon brownish-streaked, fuscescent, in age blackish, rarely with a narrow white evanescent annulus; cortina whitish, forming a silky zone on the young margin of the pileus, fuscescent; spores broadly ellipsoid, rough, 7–8 × 5–6 μ.

TYPE LOCALITY: Sweden.
HABITAT: On mosses and humus, in coniferous forests.
DISTRIBUTION: Adirondack Mountains, New York, and Rocky Mountains, Colorado; also in Europe.
ILLUSTRATION: Fries, Ic. Hymen. *pl. 162, f. 3.*

195. **Cortinarius rigens** Fries, Epicr. Myc. 311. 1838.

Pileus fleshy, rather rigid when dry, campanulate-expanded, subumbonate, obtuse or broadly gibbous, 2–5 cm. broad; surface glabrous, even, hygrophanous, cinnamon-rufous (R) to Capuchin-brown (R) when moist, fading to ochraceous-buff (R) and then with delicate canescent innate fibrils; margin at first straight; context thin, concolorous, fading to white, the odor somewhat penetrating, subaromatic; cortina scanty, white; lamellae adnate, subdecurrent, broad, close, becoming subdistant, pale-clay-colored, then pale-cinnamon, the edge crenulate-eroded; stipe tapering downward and subradicating, sometimes equal, sometimes fusiform, 5–8 cm. long, 5–9 mm. thick, toughish, more rigid-brittle when dry, the cortex cartilaginous, stuffed, then hollow, pruinose at the apex, at length silky-shining and whitish; spores ellipsoid, almost smooth, 7–9 × 4–5 μ.

TYPE LOCALITY: Sweden.
HABITAT: In coniferous or mixed forests.
DISTRIBUTION: Appalachian Mountains, New York to Tennessee; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 812* (*846*); Grevillea *pl. 104, f. 1;* Ricken, Blätterp. Deutschl. *pl. 53, f. 9.*

196. **Cortinarius scandens** Fries, Epicr. Myc. 312. 1838.

Pileus fleshy, rigid, conic-campanulate, then expanded-umbonate, 1–3 cm. broad; surface glabrous, watery-rusty-fulvous at first when moist and then striatulate on the margin, soon honey-colored or alutaceous to paler when dry, soon even, hygrophanous; context thin, concolorous, the odor none or slight; lamellae adnate, sometimes emarginate, narrow, close to subdistant, thin, pallid-brown, then cinnamon, the edge concolorous; stipe 3–8 cm. long, 2–5 mm. thick, tapering downward, thickened above, attenuate at the slender curved base, flexuous, soon rigid, stuffed, then hollow, fulvous when moist, pallid or white and shining when dry, scarcely fibrillose at first by the remains of the scanty white cortina; spores short-ellipsoid, almost smooth, 6–7.5 (rarely 8) × 4–5 μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in frondose and coniferous forests.
DISTRIBUTION: New York to Michigan; Colorado; also in Europe.

197. **Cortinarius acutus** Fries, Epicr. Myc. 314. 1838.

Pileus fleshy, conic or conic-campanulate with an acute umbo, 5–25 mm. broad; surface watery-rufous-cinnamon when moist, pale-alutaceous when dry, hygrophanous, minutely silky, striate to the umbo; margin white-cortinate, glabrescent; context submembranaceous, yellowish; lamellae adnate, seceding, close or scarcely subdistant, thin, not broad, pale-ochraceous at first, then ochraceous-cinnamon, the edge entire; stipe equal, 4–8 cm. long, 1–2 mm. thick, slender, flexuous, tubular, yellowish at first, becoming paler, silky from the evanescent white cortina, glabrescent; spores ellipsoid, smooth, 7–9.5 × 5–5.5 μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in swampy places and mixed woods.
DISTRIBUTION: New England and New York; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 845b* (*852*); Grevillea *pl. 112, f. 5.*

198. **Cortinarius lignarius** Peck, Ann. Rep. N. Y. State Mus. 26: 62. 1874.

Pileus conic-campanulate, subacutely umbonate, 0.5–3 cm. broad; surface hygrophanous, glabrous, watery-cinnamon to chestnut-fulvous when moist, not striate, fading to pale-fulvous-tan, innately silky-shining; margin at first straight and soon naked; context submembranaceous, concolorous, the odor none, the taste slight; lamellae adnate-seceding, broad, close, thin, ochraceous-pallid at first, then somewhat rusty-brown; stipe rather slender, equal, 2–5 cm. long, 2–3 mm. thick, pallid or subrufous toward the base, often curved at the base, silky-fibrillose below, subcingulate at or above the middle by silky-white remnants of the rather copious cortina, at length tubular, the base white-mycelioid; spores narrow-ellipsoid, smooth, 6.5–7 × 4–5 μ.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: On very rotten wood, in coniferous or mixed forests.
DISTRIBUTION: New York to Michigan.
ILLUSTRATION: C. H. Kauffman, Agar. Mich. *pl. 91.*

199. **Cortinarius erythrinus** Fries, Epicr. Myc. 312. 1838.

Pileus rather firm, conic-campanulate, then subexpanded, and subacutely umbonate, 1–2 cm. broad; surface chestnut-brown, the umbo umber or blackish, paler toward the margin, hygrophanous, glabrous, even, soon fading; context thin on the margin, scissile, watery-brown when moist, the odor and taste mild; lamellae rounded behind and adnexed, rather broad, ventricose, close to subdistant, pallid or pale-brownish, then cinnamon, the edge entire; stipe slender, 4–6 cm. long, 3–4 mm. thick, fragile, equal, flexuous, stuffed, then hollow, the apex violet at first, pale-brownish elsewhere, sometimes violet-tinged throughout, sparsely cortinate, glabrescent, shining when dry; spores short, ellipsoid, almost smooth, 7–9 × 5–6 μ, pale-ochraceous.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in moist coniferous or mixed woods.
DISTRIBUTION: Adirondack Mountains, New York; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 798a* (*850*); Ricken, Blätterp. Deutschl. *pl. 53, f. 2;* Grevillea *pl. 115, f. 2.*

200. **Cortinarius leucopus** Fries, Epicr. Myc. 311. 1838.

Agaricus leucopus Fries, Syst. Myc. 1: 236. 1821.

Pileus conic-campanulate, at length expanded and umbonate, 1–3 cm. broad; surface even, glabrous, roods-brown (R) when moist, cinnamon-buff (R) when dry, hygrophanous; lamellae adnate-sinuate, ventricose, not broad, subdistant, pallid at first, then ochraceous-tawny (R), the edge entire; stipe rather slender, equal, 3–4 cm. long, 2–4 mm. thick, silky-fibrillose or sometimes subcingulate from the white cortina, stuffed to hollow, white or pallid; spores narrow, ellipsoid-oblong, scarcely rough, 7–8 × 3.5–4.5 μ.

TYPE LOCALITY: Sweden.
HABITAT: On mossy ground, in coniferous forest.
DISTRIBUTION: New York to Michigan; also in Europe.
ILLUSTRATION: Cooke, Brit. Fungi *pl. 843b* (*848*).

201. **Cortinarius acutoides** Peck, Bull. N. Y. State Mus. 139: 46. 1910.

Pileus fleshy, conic or subcampanulate, acutely umbonate, 8–16 mm. broad; surface hygrophanous, not striate, pale-chestnut-colored at first, floccose and margined by the fibrils of the cortina, whitish and silky-fibrillose when dry; lamellae adnexed, subdistant, ascending, narrow, yellowish-cinnamon; stipe 2.5–5 cm. long, 2–3 mm. thick, solid or with a small hollow tubule, white, then pallid; spores ellipsoid, 8–10 × 6–7 μ.

TYPE LOCALITY: Ellis, Massachusetts.
HABITAT: On the ground, in swamps.
DISTRIBUTION: New England and New York.
ILLUSTRATION: Bull. N. Y. State Mus. 139: *pl. Z, f. 4–8.*

202. **Cortinarius germanus** Fries, Epicr. Myc. 312. 1838.

Pileus submembranous, fragile, campanulate, then expanded and obtusely umbonate, 1–3 cm. broad; surface glabrous, even, hygrophanous, army-brown (R) to vinaceous-brown (R) and innately silky-shining when moist, fading; margin white-silky, scarcely incurved; context concolorous, then pallid, thin, the odor and taste slight; lamellae broadly adnate, sometimes subdecurrent by a tooth or line, subdistant, broad, rigid, pallid at first, becoming sayal-brown (R) or darker, the edge entire; stipe equal, 3–5 cm. long, 1.5–3 mm. thick, straight, then flexuous, curved, subcespitose or gregarious, very thinly white-silky, glabrescent and shining, pale-vinaceous-brown (R), white-mycelioid at the base, stuffed, then hollow; spores ellipsoid, punctate, 8–9 × 5 μ, dark-rusty-brown under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: In moist mixed woods of pine and beech.
DISTRIBUTION: New England to Maryland; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 859* (*844*); Grevillea *pl. 114, f. 2.*

DOUBTFUL AND EXCLUDED SPECIES

Cortinarius appendiculatus Johnson, Bull. Minn. Acad. **1**: 335. 1878. Incompletely described. Type not extant.

Cortinarius arenatus Fries, Epicr. Myc. 283. 1838. A collection by Peck at Albany appears to be a poorly developed *C. pholideus*.

Cortinarius autumnalis Peck, Ann. Rep. N. Y. State Cab. **23**: 109. 1872. Insufficiently described.

Cortinarius Berlesianus Sacc. & Cub.; Sacc. Syll. Fung. **5**: 919. 1887. Based upon *C. tricolor* Peck; it may be *C. delibutus* Fries, but no certainty can be expressed.

Cortinarius bryorum Clements, Crypt. Form. Colo. *382*. 1907. A minute plant, probably a *Pholiota*.

Cortinarius caesius Clements, Bot. Surv. Neb. **4**: 22. 1896. Insufficiently known.

Cortinarius cinereo-violaceus Fries, Epicr. Myc. 279. 1838. A collection by Peck, and so referred by him, remains uncertain because of lack of descriptive notes. See also writings of Fries, where the name sometimes occurs as *Cortinarius violaceo-cinereus*.

Cortinarius Clintonianus Peck, Ann. Rep. N. Y. State Mus. **26**: 61. 1874. This is probably identical with *C. anomalus* Fries.

Cortinarius craticius Fries, Epicr. Myc. 282. 1838. A collection in the Peck herbarium at Albany is referable to *Cortinarius rubripes* C. H. Kauffman.

Cortinarius fascicularis Johnson, Bull. Minn. Acad. **1**: 333. 1878. Incompletely described. Type not extant.

Cortinarius maculatus Johnson, Bull. Minn. Acad. **1**: 334. 1878. Incompletely described. Type not extant.

Cortinarius nitidus Fries, Epicr. Myc. 275. 1838. A collection so named is in the Peck herbarium at Albany, but the determination is doubtful.

Cortinarius nudipes Earle, Bull. N. Y. Bot. Gard. **2**: 343. 1902. From California. Insufficiently described.

Cortinarius ochroleucus Fries, Epicr. Myc. 284. 1838. Frequently reported from North America; at least sometimes confused with *Cortinarius flavifolius* Peck. I have never seen the species in this country.

Cortinarius pluvius Fries, Epicr. Myc. 277. 1838. Specimens identified by Peck are at Albany, but without detailed notes. In such a case no certainty can be arrived at as to their identity.

Cortinarius pulcher Peck, Ann. Rep. N. Y. State Mus. **26**: 63. 1874. This is probably referable to *Naucoria*.

Cortinarius punctifolius Peck, Bull. Torrey Club **30**: 96. 1903. From Idaho. This species is better a *Flammula*.

Cortinarius radians Earle, Bull. N. Y. Bot. Gard. **2**: 343. 1902. From California. Insufficiently described.

Cortinarius radicibus Johnson, Bull. Minn. Acad. **1**: 334. 1878. Incompletely described. Type not extant.

Cortinarius Robinsonii Mont. Syll. Crypt. 134. 1856. Not likely to be further recognized.

Cortinarius rubidus Mont. Syll. Crypt. 133. 1856. From Ohio. No satisfactory knowledge of this species is at hand, nor likely to appear.

Cortinarius robustus Peck, Ann. Rep. N. Y. State Mus. **29**: 42. 1878. Insufficiently described.

Cortinarius simulans Peck, Bull. N. Y. State Mus. **1**^{2}: 8. 1888. This is probably identical with *Cortinarius anomalus* Fries.

Cortinarius Sintenisii P. Henn. Bot. Jahrb. **17**: 498. 1893. Described from Porto Rico. I have not seen it.

Cortinarius speciosus Earle, Bull. N. Y. Bot. Gard. **3**: 299. 1904. From California. Unknown to me.

Cortinarius subsalmoneus C. H. Kauffman, Jour. Myc. **13**: 38. 1907. Only a very brief synopsis of this is in print.

Cortinarius tigrinus Johnson, Bull. Minn. Acad. **1**: 335. 1878. Incompletely described. Type not extant.

Cortinarius tophaceus Fries, Epicr. Myc. 281. 1838. Peck placed a collection, now at Albany, under this species; it appears, however, to be *Cortinarius annulatus* Peck.

Cortinarius tricolor Peck, Ann. Rep. N. Y. State Cab. **23**: 107. 1872. This appears to be similar to *Cortinarius delibutus* Fries.

Cortinarius validipes Peck, Bull. N. Y. State Mus. 116: 20. 1907. Belongs to the genus *Flammula*, and is referred by Murrill to *Flammula magna* Peck as *Gymnophilus magna* (Peck) Murrill.

Cortinarius venosus Johnson, Bull. Minn. Acad. **1**: 336. 1878. Incompletely described. Type not extant.

Cortinarius vernalis Peck, Ann. Rep. N. Y. State Cab. **23**: 112. 1872. This species is referable to the genus *Naucoria*.

DIAGNOSES SPECIERUM NOVARUM GENERUM HYPODENDRUM ET CORTINARIUS

Hypodendrum aurivelloides (vide pag. 281).

Pileus hemisphaericus vel late campanulatus vel convexus, e ferrugineo fuscus margine pallidiore, squamis paucis appressis; contextus flavus nonnihil crassus; lamellae sinuato-adnatae vel dente decurrente, ex albido ochraceo-fulvus vel surrufus; velamen annulum persistentem vel nonnihil evanescentem formans; stipes centralis aequalis, subaureus vel subbrunneus, squamosus, solidus; sporae oblongo-ellipsoideae leves saturate brunneae, 9–11 × 6 μ.

Cortinarius montanus (vide pag. 299).

Pileus carnosus, e late convexo subhemisphaericus tum expansus discoideusque margine decurvato, viscidus humescens glutinosus, e corylino fuscus vel argillicolor margine umbricolor aequale glabro; contextus ad 15 mm. crassus, ad marginem abrupte tenuis, albidus, odore saporeque mite; lamellae emarginato-adnexae angustae confertae, e olivaceo brunneae, margine integro; stipes firmus, subtiliter albido-sericeo-fibrillosus, e farcto cavus, pallide caeruleus intus concolor, supra aequalis infra bulbosus; sporae ellipsoideae subinaequilaterales tuberculatae, sub vitro pallide ferrugineae, 9–12 × 5.5–7 μ.

Cortinarius substriatus (vide pag. 307).

Pileus subcarnosus, late conico-campanulatus, viscidus glaber, e brunneo pallescens nonnihil margine striato; lamellae adnatae ventricosae confertae marginem pilei non attingentes, e violaceo-purpureo cinnamomeae; stipes elongatus, a basi ad apicem sensim angustans, siccus, farctus, primo vaginatus tum subfibrillosus, apice violaceo-purpureus mox pallidior; sporae anguste ellipsoideae, leves, sub vitro pallide ochraceae, 9–10 × 5–6 μ.

Cortinarius immixtus (vide pag. 310).

Pileus carnosus, campanulato-convexus tum subplanus, obtusus, glutinosus glaber, citrinus, tardius centro brunneus et margine ochraceo-fuscus; contextus centro crassus margine abrupte tenue, albidus, odore saporeque mite; lamellae adnatae tum sinuatae, confertae, tenues, e sulphureo cinnamomeae, margine integro; stipes crassus, subaequalis, farctus mox ad apicem cavus, ad apicem glaber et nitens alibi fibrillosus; sporae ventricoso-subellipsoideae utrinque subacutae, nonnihil amygdaliformes, leves, sub vitro furfuraceae, 8–10 × 4.5–5.5 μ.

Cortinarius pyriodorus (vide pag. 314).

Pileus carnosus firmiusculus campanulato-convexus tum valde expansus, obtusus vel subumbonatus, siccus, glaber sed innate sericeo-fibrillosus, nitens, aequalis, unicolor, primo e lilacino lavendulicolor ad maturitatem saturate vinaceo-lavendulicolor, pallescens, margine primo incurvo et decurvo; contextus compactus centro crassus margine abrupte tenuis, concolor, sapore mite, odore penetrante sed variabile non fetido; lamellae adnatae demum subdecurrentes, discretae, e lilacino purpureae vel cinnamomeae; stipes longus, e basi clavato sursum sensim angustans, solidus, concolor, demum subfibrillosus, bulbo albido; sporae ellipsoideo-subfusiformes utrinque subacutae, sub vitro dilute cinnamomeae, 8–10 × 4.5–5.5 μ.

Cortinarius distortus (vide pag. 319).

Pileus carnosus fragilissimus irregulare subhemisphaericus vel campanulatus obtusus subexpandus, nonnihil udus et albo-sericeus mox siccus, glabrescens aequalis salmoneus margine ex incurvato decurvato; contextus rigidus crassus margine abrupte tenue aquoso-albidus, odore saporeque mite; lamellae varie adhaerentes ob pileum frequente distortum, subdistantes, subcrassae, pallide argillicolores tum saturatiores; stipes crassus fragilis, e subclavato clavato-bulbosus vel subaequalis, inflate gyrosus vel irregulariter longitudinale sulcatus, cavus contextu cartilagineo, extra intusque albus aetate brunnescens demum ubique fibrillosus; cortina alba; sporae ellipsoideae obtusae, 10–12 × 5.5–6.5 μ.

Cortinarius clandestinus (vide pag. 324).

Pileus modice crassus campanulato-convexus tum planus, primo umbonatus demum depressus, siccus, primo brunneo-fibrilloso-squamatus tardius ad marginem aureus disco demum saturatiore, margine tenue ex incurvo patente; contextus disco excepto tenuis, subfragilis, luteo-olivaceus, odore raphani; lamellae adnatae tum sinuatae confertae, pallidae mox lutescentes vel olivaceae demum brunneo-aureae margine minute albo-flocculoso; stipes aequalis vel infra crassior, farctus tum cavus, pallide viridi-aureus, obsolete peronatus vel glabrescens; sporae e late ellipsoideo subglobosae utrinque rotundatae levissimae, sub vitro saturate rubigineae, 6–7 × 5–6 μ.

COMPLETED VOLUME

9: i–iv, 1–542. (Agaricales:) Polyporaceae (pars), Boletaceae, Agaricaceae (pars). Complete in 7 parts.

PARTS OF VOLUMES PREVIOUSLY PUBLISHED

3^{1}: 1–88. Hypocreales: Nectriaceae, Hypocreaceae. Fimetariales: Chaetomiaceae, Fimetariaceae.

6^{1}: 1–84. Phyllostictales: Phyllostictaceae (pars).

7^{1}: 1–82. Ustilaginales: Ustilaginaceae, Tilletiaceae. 7^{2}: 83–160. 7^{3}: 161–268. 7^{4}: 269–336. 7^{5}: 337–404. 7^{6}: 405–480. 7^{7}: 481–540. 7^{8}: 541–604. 7^{9}: 605–668. 7^{10}: 669–732. 7^{11}: 733–796. 7^{12}: 797–848. 7^{13}: 849–969. Uredinales: Coleosporiaceae, Uredinaceae, Aecidiaceae.

10^{1}: 1–76. 10^{2}: 77–144. 10^{3}: 145–226. 10^{4}: 227–276. (Agaricales:) Agaricaceae (pars).

14^{1}: 1–66. Sphaerocarpales: Sphaerocarpaceae, Riellaceae. Marchantiales: Ricciaceae, Corsiniaceae, Targioniaceae, Sauteriaceae, Rebouliaceae, Marchantiaceae.

15^{1}: 1–75. Sphagnales: Sphagnaceae. Andreaeales: Andreaeaceae. Bryales: Archidiaceae, Bruchiaceae, Ditrichaceae, Bryoxyphiaceae, Seligeriaceae. 15^{2}: 77–166. Dicranaceae, Leucobryaceae.

16^{1}: 1–88. Ophioglossales: Ophioglossaceae. Marattiales: Marattiaceae. Filicales: Osmundaceae, Ceratopteridaceae, Schizaeaceae, Gleicheniaceae, Cyatheaceae (pars).

17^{1}: 1–98. Pandanales: Typhaceae, Sparganiaceae. Naiadales: Zannichelliaceae, Zosteraceae, Cymodoceaceae, Naiadaceae, Lilaeaceae. Alismales: Scheuchzeriaceae, Alismaceae, Butomaceae. Hydrocharitales: Elodeaceae, Hydrocharitaceae. Poales: Poaceae (pars). 17^{2}: 99–196. 17^{3}: 197–288. 17^{4}: 289–354. Poaceae (pars).

18^{1}: 1–60. 18^{2}: 61–112. 18^{3}: 113–168. (Poales:) Cyperaceae (pars).

21^{1}: 1–93. Chenopodiales: Chenopodiaceae. 21^{2}: 95–169. Amaranthaceae. 21^{3}: 171–254. Allioniaceae.

22^{1}: 1–80. Rosales: Podostemonaceae, Crassulaceae, Penthoraceae, Parnassiaceae. 22^{2}: 81–191. Saxifragaceae, Hydrangeaceae, Cunoniaceae, Iteaceae, Pterostemonaceae, Hamamelidaceae, Altingiaceae, Phyllonomaceae. 22^{3}: 193–292. Grossulariaceae, Platanaceae, Crossosomataceae, Connaraceae, Calycanthaceae, Rosaceae (pars). 22^{4}: 293–388. 22^{5}: 389–480. 22^{6}: 481–560. Rosaceae (pars).

23^{1}: 1–76. 23^{2}: 77–136. 23^{3}: 137–194. (Rosales:) Mimosaceae. 23^{4}: 195–268. Krameriaceae, Caesalpiniaceae (pars). 23^{5}: 269–349. Caesalpiniaceae (pars).

24^{1}: 1–64. 24^{2}: 65–136. 24^{3}: 137–200. 24^{4}: 201–250. 24^{5}: 251–314. 24^{6}: 315–378. 24^{7}: 379–462. (Rosales:) Fabaceae (pars).

25^{1}: 1–87. Geraniales: Geraniaceae, Oxalidaceae, Erythroxylaceae, Linaceae. 25^{2}: 89–171. Tropaeolaceae, Balsaminaceae, Limnanthaceae, Koeberliniaceae, Zygophyllaceae, Malpighiaceae. 25^{3}: 173–261. Rutaceae, Surianaceae, Simaroubaceae, Burseraceae. 25^{4}: 263–326. Meliaceae, Trigoniaceae. Polygalales: Vochyaceae, Polygalaceae (pars). 25^{5}: 327–383. Polygalaceae (pars), Dichapetalaceae.

29^{1}: 1–102. Ericales: Clethraceae, Monotropaceae, Lennoaceae, Pyrolaceae, Ericaceae.

32^{1}: 1–86. 32^{2}: 87–158. Rubiales: Rubiaceae (pars).

33^{1}: 1–110. Carduales: Ambrosiaceae, Carduaceae (pars).

34^{1}: 1–80. 34^{2}: 81–180. 34^{3}: 181–288. 34^{4}: 289–360. (Carduales:) Carduaceae (pars).

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